

Rooftop Systems Engineers, P.C.

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ROOF REPLACEMENT

AT THE

NCDOT DIVISION 6 TRAFFIC SERVICES OFFICE

558 GILLESPIE ST

FAYETTEVILLE, NORTH CAROLINA

GL: 52199012 Cost Center: 150538
SCO ID# 14-11317-01A



May 22, 2015

RSE Job No. 14-069



**ROOF REPLACEMENT
AT THE
NCDOT DIVISION 6 TRAFFIC SERVICES OFFICE
558 GILLESPIE ST
FAYETTEVILLE, NORTH CAROLINA**

**GL: 52199012 Cost Center: 150538
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**STATE OF NORTH CAROLINA
STANDARD FORM OF INFORMAL CONTRACT
AND GENERAL CONDITIONS**

FOR

**ROOF REPLACEMENT
AT THE
NCDOT DIVISION 6 TRAFFIC SERVICES OFFICE
558 GILLESPIE ST
FAYETTEVILLE, NORTH CAROLINA
GL: 52199012 Cost Center: 150538
SCO ID# 14-11317-01A**

SCOPE OF WORK

The project involves roof replacement at the referenced location. The project will involve removing the existing multi-ply built up membrane, insulation, and all flashings down to the concrete double T deck. The roof replacement will include installation of: adhered board insulation and crickets with the proper "R" value per current NC building and energy codes, a fully adhered TPO membrane and associated flashings, sheet metal coping covers, new gutter, scuppers, conductor heads and downspouts, new skylights, and a new roof to roof access ladder. Project alternates include replacement of vapor barrier and replacement of sealant joints at precast and brick walls. There are three roof areas (approximately 29,300 s.f. total) included in the base bid.

NOTICE TO BIDDERS

Sealed bid for this work will be received by:

Mrs. Priscilla Williams, P.E.
North Carolina Department of Transportation
Room 523, 1 South Wilmington Street
Raleigh, NC 27601
Office: 919-707-4540

up to 3:00 PM, on 06/16/2015 and immediately thereafter publicly opened and read aloud.

Complete electronic plans and specification and contract documents can be obtained from

Rooftop Systems Engineers, P.C.
316 West Millbrook Road; Suite 201
Raleigh, NC 27609
Office: 919-872-7866

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 for S-Roofing.

No bid may be withdrawn after the opening of bids for a period of 30 days.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. Bids shall be made only on the BID/ACCEPTANCE form provided herein with all blank spaces for bids properly filled in and all signatures properly executed.

Please note on the envelope – **Bid : Attn:** Ms. Priscilla Williams

ROOF REPLACEMENT
AT THE
NCDOT DIVISION 6 TRAFFIC SERVICES OFFICE
558 GILLESPIE ST
FAYETTEVILLE, NORTH CAROLINA
GL: 52199012 Cost Center: 150538
SCO ID# 14-11317-01A
Friday, May 21, 2015 at 3:00 PM
(Contractor)
(License Number)

A mandatory pre-bid meeting will be held at 558 Gillespie St., Fayetteville, NC at **1:30 p.m. on Thursday, June 4, 2015**. The meeting will address project specific questions, issues, bidding procedures and bid forms.

Each proposal shall be accompanied by the appropriate Minority Business Forms.

A bid bond of five percent (5%), and performance and payment bonds will be required for one hundred percent (100%) of the contract price. The forms for each, included herein, must be used.

BID/ACCEPTANCE FORM

for

**ROOF REPLACEMENT
AT THE
NCDOT DIVISION 6 TRAFFIC SERVICES OFFICE
558 GILLESPIE ST
FAYETTEVILLE, NORTH CAROLINA
GL: 52199012 Cost Center: 150538
SCO ID# 14-11317-01A**

We are in receipt of Addendum _____1_____2 _____3 _____4

The undersigned, as bidder, proposes and agrees if this bid is accepted to contract with the State of North Carolina through the North Carolina 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 North Carolina Department of Transportation for the sum of:

BASE BID:

1. Mobilization, bonds, submittals, all other general construction costs, and all work not specifically listed on this form of proposal but included in the drawings or specifications:

Lump Sum= \$ _____

2. Removal of the existing roof system and any unbonded vapor barrier:

Lump Sum= \$ _____

3. Install constant thickness and tapered insulation set in adhesive:
Lump Sum = \$ _____

4. Install fully adhered TPO membrane and associated flashings:
Lump Sum = \$ _____

5. Replace any deteriorated or damaged wood blocking:
150 b.f. @ \$ _____ / b.f. (UP#1) = \$ _____

(Extended Price)

SUBMIT THREE (3) ORIGINALS OF THIS DOCUMENT AS YOUR BID.
Bid Form Page 1 of 5

6. Install new skylights:
16 ea. @ \$ _____ / ea. (UP#2) = \$ _____

(Extended Price)

7. Install new scuppers, gutter, downspouts, conductor heads, coping, and other miscellaneous sheet metal components:

Lump Sum= \$ _____

8. Install liquid applied coating at pipe vents on sheet metal boxes:

Lump Sum= \$ _____

9. Install new access ladder between roof areas B and C:

Lump Sum= \$ _____

TOTAL BASE BID (Items 1 thru 9) _____

_____ Dollars (\$) _____

ALTERNATE BIDS:

ALTERNATE 1:

Replace all vertical sealant joints at brick and precast walls not covered by new membrane:

Lump Sum= \$ _____

ALTERNATE 2:

Replace vapor barrier at all roof areas:

Lump Sum= \$ _____

SUBMIT THREE (3) ORIGINALS OF THIS DOCUMENT AS YOUR BID.

Bid Form Page 2 of 5

UNIT PRICES

This work is being bid based upon the Contractor's lump sum prices, unit prices, and the quantity allowance amounts noted. Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.

Should the actual quantities of work be increased or decreased for any of the Bid items (Base Bid items 5 and 6), the Unit Prices shown will be used to adjust the contract price (increase or decrease) throughout the life of the contract.

In the event of a discrepancy in the mathematical extensions of unit prices, the extended price shall be corrected per the unit price shown. In the event of a discrepancy in the addition of extended and lump sum prices, the subtotal shall be corrected based on the extended and lump sum prices shown.

SUBMIT THREE (3) ORIGINALS OF THIS DOCUMENT AS YOUR BID.

Bid Form Page 3 of 5

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 _____ Department of Transportation _____

Total amount accepted by the owner, including base bid and bid alternates: _____

BY: _____ TITLE: _____

SUBMIT THREE (3) ORIGINALS OF THIS DOCUMENT AS YOUR BID.

Bid Form Page 4 of 5

MEMBRANE MANUFACTURER'S CERTIFICATE
ROOF REPLACEMENT
AT THE
NCDOT DIVISION 6 TRAFFIC SERVICES OFFICE
FAYETTEVILLE, NORTH CAROLINA

TO: NC Department of Transportation through
State of North Carolina Department of Administration

The undersigned manufacturer of the single ply roof system and related roof system materials, is familiar with local weather and climate; is aware of the current interior and exterior environmental conditions to which the roof membrane and related roof system materials will be subjected; has reviewed the plans, specifications and contract documents for this project; and hereby certifies that:

- (1) their roof system(s) and component materials are suitable for the roofs of these buildings,
- (2) their roof membrane and related roof system materials are suitable for use with all other roof system materials specified,
- (3) the roofing contractor named below is an authorized applicator of their roof system and related roof system materials and, subject to the Owner's award of construction contract, is authorized to install said system.

Contractor: _____
Name

Address

Manufacturer: _____
Name

Address

Authorized Signature

Date

SUBMIT THREE (3) ORIGINALS OF THIS DOCUMENT AS YOUR BID.
Bid Form Page 5 of 5

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 the 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.

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*.

*Inspection and certification of compliance by local authorities is necessary if an architect or engineer was not employed on the project, or if the plans and specifications were not approved and the construction inspected by the State Construction Office.

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.
- i. 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).
- j. 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 (1st tier subs), or their sub-subcontractors (2nd tier subs, 3rd tier subs, etc.) shall be allowed a maximum of 10% on work they each self-perform; the prime contractor shall be allowed a maximum of 5% on contracted work of his 1st tier sub; 1st tier, 2nd tier, 3rd tier, etc. contractors shall be allowed a maximum of 2.5% on the contracted 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.

For construction contracts with a value of \$300,000 or greater, the contractor shall comply with the document *Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts* including Identification of Minority Business Participation, Affidavits A, B, C, and D, and Appendix E. These forms provided herein are hereby incorporated and made a part of this contract.

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/Owner and shall fully complete all work hereunder within (75) consecutive calendar days from the Notice to Proceed. For each day in excess of the above number of days, the Contractor shall pay the Owner the amount of Two Hundred Dollars (\$ 200.00) 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.

UTILITIES

Owner may provide certain utilities such as power or water with connections and extensions by the Contractor. Contractor shall provide temporary toilet facilities to be utilized by their own personnel.

SECURITY

At all times the contractor and their employees and/or subcontractors must maintain lawful and appropriate conduct. Concealed weapons, alcohol, and illegal drugs are prohibited. Contractor shall be responsible for maintaining security of project resources and materials.

USE OF SITE

There are restricted areas of the construction site that will be defined by the Owner during the Pre-Bid Meeting. Work hours are limited, but may allow for flexibility.

UNIT PRICES

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the scope of work in accordance with the contract documents. Unit prices are complete for labor, equipment, material, overhead, and profit. The cost of any unused amount will be credited to the Owner by Change Order at the end of the job.

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.

PROPOSAL AND CONTRACT

The Base Bid shall include the cost of all work not specifically listed in the bid breakdown, i.e. all general construction costs.

CONTRACTOR-SUBCONTRACTOR RELATIONSHIPS

The Contractor agrees that the terms of these contract documents shall apply equally to a subcontractor as to the Contractor, and that the subcontractor is bound by those terms as an employee of the Contractor.

The general contractor awarded the contract shall within fourteen (14) days after the award of the contract submit copies of any subcontracts. Roofing subcontractor shall have the contractor license classification for "S-Roofing".

MINORITY BUSINESS PARTICIPATION

Each bidder shall follow the Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts.

STATE OF NORTH CAROLINA
 COUNTY SALES AND USE TAX REPORT
 SUMMARY TOTALS AND CERTIFICATION

CONTRACTOR: _____

Page _____ of _____

PROJECT: _____

FOR PERIOD: _____

	TOTAL FOR COUNTY OF:	TOTAL ALL COUNTIES					
CONTRACTOR							
SUBCONTRACTOR(S)*							
COUNTY TOTAL							

* Attach subcontractor(s) report(s)
 ** Must balance with Detail Sheet(s)

I certify that the above figures do not include any tax paid on supplies, tools and equipment which were used to perform this contract and only includes those building materials, supplies, fixtures and equipment which actually became a part of or annexed to the building or structure. I certify that, to the best of my knowledge, the information provided here is true, correct, and complete.

Sworn to and subscribed before me,

This the _____ day of _____, 20____

 Signed

 Notary Public

My Commission Expires: _____

 Print or Type Name of Above

Seal

NOTE:
 This certified statement may be subject to audit

**STATE OF NORTH CAROLINA
SALES AND USE TAX REPORT DETAIL**

CONTRACTOR: _____

Page _____ of _____

SUBCONTRACTOR _____

FOR PERIOD: _____

PROJECT: _____

PURCHASE DATE	VENDOR NAME	INVOICE NUMBER	TYPE OF PROPERTY	INVOICE TOTAL	COUNTY TAX PAID	COUNTY OF SALE *
				\$	\$	
				TOTAL:	\$	

* If this is an out-of-state vendor, the County of Sale should be the county to which the merchandise was shipped.

FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS THAT _____

_____ as principal, and _____, as surety, who is duly licensed to act as surety in North Carolina, are held and firmly bound unto the State of North Carolina* through North Carolina Department of Transportation as obligee, in the penal sum of _____ DOLLARS, lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this ____ day of ____ 20__

WHEREAS, the said principal is herewith submitting proposal for and the principal desires to file this bid bond in lieu of making the cash deposit as required by G.S. 143-129.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such, that if the principal shall be awarded the contract for which the bid is submitted and shall execute the contract and give bond for the faithful performance thereof within ten days after the award of same to the principal, then this obligation shall be null and void; but if the principal fails to so execute such contract and give performance bond as required by G.S. 143-129, the surety shall, upon demand, forthwith pay to the obligee the amount set forth in the first paragraph hereof. Provided further, that the bid may be withdrawn as provided by G.S. 143-129.1

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

FORM OF PERFORMANCE BOND

Date of Contract: _____

Date of Execution _____

Name of Principal: _____

(Contractor)

Name of Surety: _____

Name of Contracting Body: **State of North Carolina through the Department of Transportation**

Amount of Bond: _____

Project: **Roof Replacement at the NCDOT Traffic Services Office
558 Gillespie St, Fayetteville, NC**

GL 52199012 Cost Center 150538

SCO ID# 14-11317-01A

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 3 counterparts.

Witness:

(Proprietorship or Partnership)

Attest: (Corporation)

By: _____

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

Contractor: (Trade or CorporateName)

By: _____

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

(Corporate Seal)

(Surety Company)

Witness:

By: _____

Title: _____
(Attorney in Fact)

Countersigned:

(N.C. Licensed Resident Agent)

Name and Address-Surety Agency

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

(Surety Corporate Seal)

FORM OF PAYMENT BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal: _____
(Contractor)

Name of Surety: _____

Name of Contracting Body: **State of North Carolina through the Department of Transportation**

Amount of Bond: _____

Project: **Roof Replacement at the NCDOT Traffic Services Office
558 Gillespie St, Fayetteville, NC**
GL 52199012 Cost Center 150538
SCO ID# 14-11317-01A

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 an 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 3 counterparts.

Witness:

Attest: (Corporation)

By: _____

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

Contractor:(Trade or CorporateName)

By: _____
(Proprietorship or Partnership)

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

(Corporate Seal)

(Surety Company)

Witness:

By: _____

Title: _____
(Attorney in Fact)

Countersigned:

(N.C. Licensed Resident Agent)

(Surety Corporate Seal)

Name and Address-surety Agency

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

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

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.

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

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

County of _____

(Name of Bidder)

Affidavit of _____

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

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

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

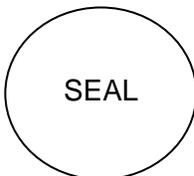
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure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

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

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

County of _____

Affidavit of _____

(Name of Bidder)

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

_____ contract.

(Name of Project)

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

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

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

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

County of _____

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

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

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

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

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

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

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

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

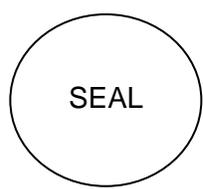
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of _____

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

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

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

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

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

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

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

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

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

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

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

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

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

**DIVISION 1
GENERAL REQUIREMENTS
SECTION 01010
SUMMARY OF WORK**

PART 1 GENERAL

- 1.1 Drawings and general provisions of the contract, including General, Supplemental and Special Conditions and other Division 1 specification sections apply to work of this section.
- 1.2 Work Covered by Contract Documents - Work under this contract consists of furnishing all labor, materials, and equipment necessary to perform the specified roof replacement as shown on the roof plans.
- 1.3 Contract Method - Construct the work based on the lump sum items and unit priced items as shown on the Bid Form.
- 1.4 BASE BID - Scope of the work shall be as depicted in the project drawings:
 - 1.4.1 Existing construction:
 - 1.4.1.1 Roof Area A (Approximately 5,700 SF)
 - A. Single sloped concrete double T deck draining to gutter
 - B. Vapor Barrier
 - C. Fiberglass insulation
 - D. Multiple ply BUR with embedded aggregate
 - 1.4.1.2 Roof Area B (Approximately 7,300 SF)
 - A. Single sloped concrete double T deck draining to through wall scuppers
 - B. Vapor Barrier
 - C. Fiberglass insulation
 - D. ISO @ crickets
 - E. Multiple ply BUR with embedded aggregate
 - 1.4.1.3 Roof Area C (Approximately 16,300 SF)
 - A. Double sloped (center ridge) concrete double T deck draining to through wall scuppers
 - B. Vapor Barrier
 - C. Fiberglass insulation
 - D. ISO @ crickets
 - E. Multiple ply BUR with embedded aggregate
 - 1.4.2 Demolition
 - 1.4.2.1 Roof Area A
 - A. Remove membrane, flashings, insulation, any deteriorated blocking and nailers, and unbonded vapor barrier.
 - B. Remove skylights.

- C. Remove gutter and downspouts.
- D. Remove coping cap at west side brick parapet only; coping cap on brick wall between areas A and B to remain.

1.4.2.2 Roof Area B

- A. Remove membrane, flashings, insulation, any deteriorated blocking and nailers, and unbonded vapor barrier.
- B. Remove skylights.
- C. Remove scupper liners, conductor heads, and downspouts.
- D. Remove coping covers on north, south, and east parapet walls.

1.4.2.3 Roof Area C

- A. Remove membrane, flashings, insulation, any deteriorated blocking and nailers, and unbonded vapor barrier.
- B. Remove skylights.
- C. Remove scupper liners, conductor heads, and downspouts.
- D. Remove coping covers on parapet walls.

1.4.3 Proposed roof replacement: (Approximately 29,300SF)

1.4.3.1 Roof Area A (Approximately 5,700SF)

- A. Install new R-30 insulation in adhesive
- B. Install new coverboard in adhesive
- C. Install new expansion joint
- D. Install new fully adhered membrane, edge metal, and flashings
- E. Install liquid applied coating at pipe vents situated on sheet metal boxes
- F. Install new coping cap on west parapet
- G. Install new gutter and downspouts
- H. Install new skylights

1.4.3.2 Roof Area B (Approximately 7,300SF)

- A. Install new R-30 insulation and crickets in adhesive
- B. Install new coverboard in adhesive
- C. Install new fully adhered membrane and flashings
- D. Install liquid applied coating at pipe vents situated on sheet metal boxes.
- E. Install new coping cap on north, south, and east parapets.
- F. Install new scuppers, conductor heads and

- downspouts
- G. Install new skylights

1.4.3.3 Roof Area C (Approximately 16,300SF)

- A. Install new R-30 insulation and crickets in adhesive
- B. Install new coverboard in adhesive
- C. Install new fully adhered membrane and flashings
- D. Install liquid applied coating at pipe vents situated on sheet metal boxes.
- E. Install new coping cap on NW and SE parapets
- F. Install new scuppers, conductor heads and downspouts
- G. Install new skylights
- H. Install new ladder to access Roof Area B

1.5 Alternates: See Section 01030

1.6 Work Sequence:

1.6.1 Work shall proceed in a continuous and orderly manner. Phased construction is unacceptable.

1.6.2 The Contractor shall strive to minimize disruption to the building operations and occupancy during remedial roofing activities and shall identify any proposed disruptions prior to bidding and shall list them on the bid form.

1.7 Contractor Use of Premises:

1.7.1 Limit use of premises for construction operations to allow for Owner occupancy.

1.7.2 Coordinate use of premises under direction of the Owner.

1.7.3 The Contractor shall be held liable for any damages to the building, the building contents, or its occupancy resulting from work under this contract.

1.8 Owner Occupancy - Owner will occupy premises during entire period of construction to conduct his normal operations. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.

1.9 Coordination:

1.9.1 Coordinate work of the various sections of specifications to assure efficient and orderly sequence of installation of materials.

1.9.2 Coordinate work under this contract with other contract work relating to the same building/roof areas to assure efficient and orderly sequence of installation of materials.

1.10 Reference Standards:

1.10.1 Products specified by association or trade standards, must comply to those standards, except when more rigid requirements are specified herein or are required by applicable codes.

1.10.2 Should there be a discrepancy between the referenced standards and these contract documents, the latter shall govern unless written interpretation is obtained from the Owner. In any event, Owner and Designer shall have final approval over work.

1.10.3 Should there be discrepancies among the referenced standards, the more stringent requirements shall govern.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

**SECTION 01024
UNIT PRICES & ALLOWANCES**

PART 1 GENERAL

1.1 Description - Provide the following unit pricing on the Form of Proposal:

1.1.1 Base Bid:

1.1.1.1 UP# 1: Unit price per board foot to replace damaged or deteriorated wood blocking or nailers. The quantity allowance is 150 BF.

1.1.1.2 UP# 2: Unit price per each to replace skylights. The quantity allowance is 16 EA.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 Contractor shall notify the Designer of any significant areas of damage or deterioration prior to replacement.

3.2 Contractor shall maintain and provide a daily report for all unit price and allowance work performed. The report shall include dates, quantities, photograph documentation, and a roof plan with areas of replacement designated and highlighted. Proper documentation of all unit price and allowance work shall be provided to the Designer and the Owner prior to acceptance and approval of said work.

END OF SECTION

SECTION 01030

ALTERNATES

PART 1 GENERAL

1.1 Work Included - All alternates as listed in the Form of Proposal.

1.2 Procedures

1.2.1 Alternates will be exercised at the option of the Owner, and may be selected independently, together, or not at all.

1.2.2 Modify and coordinate related activities as required to complete the work if, and when, acceptance is designated by the Owner in the Owner-Contractor Agreement.

1.2.3 In the event alternates are exercised, applicable sections of this specification shall govern. Other sections may be modified as required to address the alternate.

1.2.4 Alternate 1: Exterior Walls: Remove existing sealant joints at precast panels and masonry expansion joints and install new backer rod and sealant (excluding joints to be covered by new membrane).

1.2.5 Alternate 2: Replace vapor barrier at all roof areas.

PART 2 PRODUCTS - See applicable specification sections for material requirements.

PART 3 EXECUTION - See applicable specification sections for installation requirements.

END OF SECTION

SECTION 01200 PROJECT MEETINGS

PART 1 GENERAL

- 1.1 Description - To provide for an orderly review during progress of the work and to provide for the systematic discussion of problems that may arise throughout the construction period.
- 1.2 Representation - Each Contractor and major Subcontractor shall be represented at every meeting by a representative member of his organization.
- 1.3 Submittals:
 - 1.3.1 The proceedings of these meetings shall be recorded by the Designer, if required. One copy of the proceedings shall be furnished to the Owner and each required representative.
 - 1.3.2 By conducting the meeting and recording and distributing meeting minutes it shall not be construed that the Designer is scheduling or coordinating the Contractor's work.
- 1.4 Decisions/Interpretations - All decisions and interpretations given at project meetings shall be made by the Owner and shall be conclusive on each contractor affected.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

- 3.1 A pre-bid meeting will be held with Owner, Owner's Representative and invited Bidders on a date to be established by Owner.
- 3.2 Preconstruction meeting - A preconstruction meeting shall be scheduled with the Designer and the Owner and/or his representative. The contractor shall be represented at a minimum by the superintendent or project manager and foreman who will actually perform/supervise the work. Failure of the contractor to provide representation in this manner may result in rescheduling the meeting.
- 3.3 Project Meetings - At the Owner's discretion, progress meetings may be held with the Designer and Owner. The contractor shall be represented at a minimum by the superintendent or project manager and foreman who will actually perform/supervise the work. Failure of the contractor to provide representation in this manner may result in rescheduling the meeting.
- 3.4 Location - Meetings shall be held at the job-site to the maximum extent possible.

END OF SECTION

SECTION 01300 SUBMITTALS

PART 1 GENERAL

- 1.1 Procedures:
 - 1.1.1 Time - Submit within seven (7) calendar days after receipt of signed contract.
 - 1.1.2 Number of copies - One digital copy.
 - 1.1.3 Identification - Each transmitted item shall be marked to show:
 - 1.1.3.1 Project name
 - 1.1.3.2 Contractor
 - 1.1.3.3 Submittal number (MUST MATCH numbers of tabulation below).
 - 1.1.3.4 The specific material to be used:
 - A. Designate such information weight, thickness, dimensions, color, material type, manufacturer, etc.
 - B. Any requests for deviations from contract documents shall be clearly identified.
 - C. Provide MSDS sheets for all submittals.
 - 1.1.4 Send all submittals to the Owner's representative (Designer).
 - 1.1.5 Review - After Designer's review of submittals, revise and resubmit, as required, identifying changes made since previous submittal.
- 1.2 Shop Drawings - Submit shop drawings for all sheet metal components showing shapes, dimensions, corner details and method of attachment.
- 1.3 Product Data:
 - 1.3.1 Submit a complete description of the roofing system listing all components and their respective manufacturer.
 - 1.3.2 Submit manufacturer's technical specifications and installation instruction for each major roofing component required.
 - 1.3.3 Minimum required components include membrane, insulation, fasteners, flashing underlayment, flashing material, sheet metal, caulking, flashing cements, primers, and sealants.

- 1.4 Partial Payment Requests - These shall be submitted monthly and shall list each bid item shown on the Bid Form; show quantity of completed work for each bid item, extend to obtain price of work complete for each bid item and then total all extensions to yield the value of work completed during the period represented by the partial payment request.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 Timing:

- 3.1.1 Make all submittals in accordance with schedules specified herein unless otherwise required.
- 3.1.2 A minimum of ten (10) calendar days shall be allowed for review by the Designer following receipt of the submittal.
- 3.1.3 All submittal packages shall be reviewed prior to actual start of appropriate segment of the project.

3.2 Review:

- 3.2.1 Review by the Designer shall be directed to the general method of construction only and shall not be construed as a complete check nor shall this review relieve the contractor from responsibility for errors and/or omissions which may exist.
- 3.2.2 The notations "Reviewed" or "Make corrections as noted" shall authorize the contractor to proceed with fabrication, purchase, or both subject to the revisions, if any required by the Designer's review comments.
- 3.2.3 The Contractor shall make all revisions as required. If the Contractor considers any required revisions to constitute a change he shall so notify the Designer under the provisions as specified in the general conditions. Only those revisions directed or approved by the Designer shall be shown on the resubmittal.
- 3.2.4 After a submittal has been reviewed by the Designer, substitution of materials or equipment shall not be considered unless accompanied by an acceptable explanation as to the necessity of the substitution.

3.3 List of required submittals - See next page.

SUBMITTALS
ROOF REPLACEMENT
AT THE
NCDOT DIVISION 6 TRAFFIC SERVICES OFFICE
558 GILLESPIE ST
FAYETTEVILLE, NORTH CAROLINA

GL: 52199012 Cost Center: 150538
SCO ID# 14-11317-01A

Review is for general compliance with the contract documents. No responsibility is assumed for correctness of dimensions or details.

ITEM	DATE SUBMITTED	STATUS			
		Reviewed	Make Corrections Noted	Revise and Resubmit	Rejected
General					
1. Emergency telephone numbers					
2. Subcontractors					
3. Material suppliers					
4. Project Schedule					
5. Schedule of Values (shall match bid form)					
Section 01750					
6. Example membrane manufacturer's twenty (20) year NDL warranty per Section 01750					
Section 05515					
7. Access ladder					
Section 06114					
8. Wood product data					
9. Wood nailers					
10. Plywood					
11. Masonry anchors					
Section 07192					
12. Vapor retarder					
Section 07212					
13. Constant thickness polyisocyanurate insulation product data					
14. Tapered polyisocyanurate insulation product data					
15. Tapered insulation shop drawings					
16. ½" gypsum coverboard					
17. Adhesive for coverboard and insulation					
18. Submit shop drawing for all sheet metal flashings if proposed fabrication deviates from project drawings.					

SUBMITTALS
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GL: 52199012 Cost Center: 150538
SCO ID# 14-11317-01A

Review is for general compliance with the contract documents. No responsibility is assumed for correctness of dimensions or details.

ITEM	DATE SUBMITTED	STATUS			
		Reviewed	Make Corrections Noted	Revise and Resubmit	Rejected
19. Submit manufacturer's FM testing data showing adhesive pattern type for FM 1-60 system.					
Section 07540					
20. TPO membrane					
21. Membrane bonding adhesive					
22. Membrane manufacturer's expansion joint					
Section 07560					
23. Fluid applied membrane system (include all components)					
Section 07621					
24. Sheet metal for coping covers					
25. Continuous cleat					
26. TPO coated edge metal					
27. Termination Bar					
28. Stainless steel for scupper liners					
29. Sheet metal for gutter, conductor heads, downspouts					
Section 07920					
30. Sealant for precast and brick joints					
31. Sealant cleaner					
32. Sealant primer					
33. Backer rod					
Section 08620					
34. Skylights					
35. Sample skylight manuf. warranty					

END OF SECTION

SECTION 01400 QUALITY CONTROL

PART 1 GENERAL

1.1 Quality Control - Contractor:

- 1.1.1 Maintain quality control over products, services, site conditions, and workmanship, to produce work of specified quality.
- 1.1.2 Project foreman or superintendent who attended the preconstruction meeting shall be on site at all times that work is being performed.
- 1.1.3 Subcontractor foremen shall be on site at all times that the work is being performed. The foremen shall be at the actual work site to observe workmanship and to be able to direct the work.

1.2 Quality Control - Owner:

- 1.2.1 The Owner reserves the right to retain the services of an independent construction monitoring representative to provide full-time monitoring of the roof replacement. If the Owner engages this service, the Contractor will be informed. Testing may be performed to determine any deficiencies.
- 1.2.2 The cost of such services as described in paragraph 1.2.1 above, will be borne by the Owner for the contract time. The cost of any monitoring and testing required after this period of time due to the installation being incomplete as a result of Contractor-controlled nonperformance will be borne by the Contractor as stated in time of completion section of the Supplementary General Conditions. Such costs will be deducted from the monies due to the Contractor at the time of final payment, recognizing any extensions of time granted by the Owner.
- 1.2.3 The Owner's project inspector shall be present during all installation of the roof repair and restoration system. Any work performed without said presence may be rendered unacceptable unless prior arrangement is made otherwise with the Owner.
- 1.2.4 The Contractor shall inform the Owner's project manager two (2) weeks prior to the start of the roofing installation and three (3) days prior to the restart of roofing work following a period of work suspension, except for single days of suspension due to weather.
- 1.2.5 The Contractor shall be required to notify the Owner's project manager prior to cancellation of any operations and subsequent restarts of the project. Any cost resulting from the failure to notify shall be borne by the Contractor.

- 1.2.6 Work found to be in violation of the specifications, or not in conformance with acceptable roofing standards, shall be subject to rejection including removal and replacement with new material at the Contractor's expense.
 - 1.2.7 The Owner's project inspector shall document quantities of those materials bid on a unit price basis listed in the Form of Proposal as well as other materials.
- 1.3 Quality Control - Manufacturer - Selected Membrane Manufacturer shall be required to provide a qualified technical representative to observe field conditions, including suitability of surfaces and material installation at start of field work, at two week intervals during the work, and at completion of the work. Manufacturer's representative shall submit written report(s) to the Contractor and Designer listing observations and recommendations. Roofing Contractor shall be responsible for ensuring site visits by Membrane Manufacturer's Representative.
- 1.4 Jobsite Cleanliness:
- 1.4.1 Streets, parking lots, walks and grounds connecting to the project area shall be protected from deposits of mud, sand, stone, litter, or debris in any form, and this protection shall be the responsibility of the Contractors. All mud collected on vehicle wheels must be cleaned off before leaving the construction area. Should any mud or debris collect on the streets from the construction project, this shall be removed immediately before becoming a traffic hazard.
 - 1.4.2 The construction site including adjacent areas will be kept free of trash, litter or debris at all times. The Contractor shall remove litter, rubbish, and debris on a daily basis. Use of the Owner's trash receptacles for such debris is not allowed. The outdoor burning of trash debris is not allowed.
 - 1.4.3 Stored items shall be kept in an orderly arrangement allowing maximum access and shall not impede drainage or traffic.
 - 1.4.4 Grass and other vegetation on the construction site shall be trimmed/mowed to maintain a neat appearance. At project completion Contractor must return all grounds to better than original condition.
 - 1.4.5 The Contractor shall conduct daily inspections to ensure that the requirements for cleanliness are being met.
 - 1.4.6 The Contractor shall provide all required manpower, material, and equipment to maintain the specified standard of cleanliness.
 - 1.4.7 Contractor shall use only those materials and equipment which are compatible with the surface being cleaned as recommended by the manufacturer or approved by the Designer.

- 1.4.8 Contractor shall provide for debris removal services and containers. Placement and servicing of containers shall be coordinated with the Owner.
- 1.4.9 Residue and debris from all operations shall not be allowed to accumulate on the project site. Debris shall be removed and properly disposed of daily in accordance with all Federal, State and Local regulations.
- 1.4.10 Dust, dirt and debris created by project construction shall be properly contained or controlled by the Contractor.
- 1.4.11 Except as specifically provided otherwise, "clean" shall be interpreted as meaning the level of cleanliness generally attainable by skilled cleaners using commercially available building maintenance equipment and materials.
- 1.4.12 Contractor shall visually inspect all exterior surfaces and remove all traces of dirt, waste materials, smudges, splashed materials, and other foreign matter. The Designer may require that light sandblasting or other cleaning be performed at no cost to the Owner. If such cleaning is required, the Contractor shall take all necessary precautions to prevent damage to adjacent materials, property and vegetation.
- 1.4.13 The contractor shall make every effort to protect the vehicles on site from becoming unclean, from construction debris and from damage. The contractor is responsible to pay for vehicle cleaning and repairs necessary due to construction related activity.
- 1.4.14 Final Cleaning:
 - 1.4.14.1 Except as specifically provided otherwise, "clean" shall be interpreted to as meaning the level of cleanliness generally attainable by skilled cleaners using commercially available building maintenance equipment and materials.
 - 1.4.14.2 All tools, equipment, materials, scrap, debris and waste shall be removed from the project site and a final progress cleaning conducted in accordance with this section.
 - 1.4.14.3 Unless otherwise directed by the Designer the Contractor shall clean all adjacent areas on the site and completely remove all resultant debris.
 - 1.4.14.4 Upon completion of the roof system, wash the surface of the membrane to remove all dirt and contaminants to provide the Owner with an aesthetically pleasing roof system.

1.5 Contractor Employees:

- 1.5.1 None but skilled foremen and workmen shall be employed on work requiring special qualifications. Any person employed on the work who fails, refuses, or neglects to obey the instructions in anything relating to this work, or who appears to be disorderly, insubordinate, or incompetent, shall upon the order of the Owner be at once discharged and not again employed on any part of the work. Any interference with, or abusive or threatening conduct toward the Designer or his assistants by the Contractor or his employees or agents, shall be authority for the Owner to annul the Contract and re-let the work.
- 1.5.2 The Contractor shall provide all agents, workers and subcontractor's with identification badges which shall be worn at all times they are on the Owner's premises. The identification badges shall at a minimum display the company name, telephone number and employee name.

1.6 Protection of Work, Property, and Public

- 1.6.1 The Contractor shall take all necessary precautions and shall be totally responsible for guarding against fires and shall provide suitable and adequate fire extinguishers conveniently located on the roof at staging areas, storage areas, and at areas or equipment where an open flame is being used. Competent operators shall be in attendance at all times and shall be properly trained or instructed in fire prevention.
- 1.6.2 Plywood, minimum 3/4 inch thick, or other suitable materials shall be used to protect roof areas from damage that may be caused by concentrated equipment loads and foot traffic.
- 1.6.3 Roof traffic shall be confined to work areas. Contractor shall be responsible for leaks and repairs that develop in traffic areas during and after project completion.
- 1.6.4 Work shall be coordinated as to prevent working, foot traffic, and storage of materials and equipment on newly completed roof areas.
- 1.6.5 Take appropriate steps at each construction site to protect the general public from hazards created by demolition and construction operations.
- 1.6.6 Separate demolition or construction site from public access by fences, barricades, or other appropriate security measures. Accident prevention signs and markers shall comply with N. C. OSHA regulations to warn of dangers (e.g., overhead electrical wires) and restrictions (e.g., restricted access areas, hard hat areas). Where necessary, provide protected detour routes for vehicles or pedestrian traffic.

- 1.6.7 Barricades and signs must be substantial enough to deter bypassing, vandalizing, or theft. Keep signs neat and legible at all times. Handmade signs are not acceptable.
 - 1.6.8 All barricades, temporary walkways, and protection of work and materials shall accommodate access, provide adequate warning, and protection to all segments of the population including wheelchair users and those using walking aids and the hearing and visually impaired.
 - 1.6.9 Contractor will note that building will remain occupied during work. He is responsible for taking all precautions necessary to protect building, contents, and personnel from damage or injury from his operations, and from water entry into the building during construction. Dirt and dust must be kept to a minimum.
 - 1.6.10 Prior to starting work Contractor shall obtain approval of the Owner for locations of work operations at ground level, such as material storage, hoisting, dumping, etc. Work will be restricted to approved locations.
- 1.7 Security Measures:
- 1.7.1 The contractor shall keep his materials and equipment secure at all times.
 - 1.7.2 The contractor and their subcontractors shall not smoke on state property.
 - 1.7.3 The Owner will provide only those security measures which are deemed prudent for its own operations. The Contractor shall provide the necessary security means to protect his or her work, materials, tools and construction equipment from vandalism, theft, and fire unless more strict measures are noted elsewhere within the construction documents. The Contractor is responsible for replacement of his or her materials, machinery, equipment, tools, and supplies which are the subject of theft or mysterious disappearance. Clearly mark all tools and equipment with the Contractor's identification. The Contractor shall clearly mark all tool boxes.
 - 1.7.4 The Contractors shall provide the Owner with a list of day and night phone numbers to use in case of emergencies during the course of the project.
 - 1.7.5 Hazard Communication Standards - All Contractors shall comply with the OSHA Hazard Communication Standard. The written Hazard Communications Program and Material Safety Data Sheets for each hazardous chemical shall be readily available and centrally located on site.

- 1.7.6 The contractor must secure all tools and materials stored on site within a locked 6 ft. tall fence (as a minimum) at the end of each day. This shall also include the portable toilet. Fence posts shall not penetrate the ground or parking lot.
 - 1.7.7 All tools stored on site must be secured in locked steel gang boxes at the end of each day.
 - 1.7.8 All vehicles and motorized equipment shall be locked and secured at the end of each day.
- 1.8 Inspection of the Work:
- 1.8.1 It is a condition of this contract that the work shall be subject to inspection during normal working hours by the designer, designated official representatives of the owner, and those persons required by state law to test special work for official approval. The contractor shall therefore provide safe access to the work at all times for such inspections.
 - 1.8.2 All instructions to the contractor will be made only by or through the designer or his designated project representative. Observations made by official representatives of the owner shall be conveyed to the designer for review and coordination prior to issuance to the contractor.
 - 1.8.3 Should any work be covered up or concealed prior to inspection and approval by the designer, such work shall be uncovered or exposed for inspection, if so requested by the designer in writing. Inspection of the work will be made promptly upon notice from the contractor. All cost involved in uncovering, repairing, replacing, recovering and restoring to design condition, the work that has been covered or concealed will be paid by the contractor involved.
 - 1.8.4 If any other portion of the work has been covered which the designer has not specifically requested to observe prior to being covered, the designer may request to see such work and it shall be uncovered by the contractor. If such work be found in accordance with the contract documents, the cost of uncovering and replacement shall, by appropriate change order, be charged to the owner. If such work be found not in accordance with the contract documents, the contractor shall pay such costs unless it be found that this condition was caused by the owner or a separate contractor, in which event the owner or the separate contractor shall be responsible for the payment of such costs.

- 1.8.5 The contractor shall notify the designer in writing that the project is complete and ready for inspection. The designer shall make an inspection to verify that the project is complete and shall prepare a list (punchlist) of any incomplete work. The contractor shall complete all items shown on the punchlist and notify the designer the project is complete and ready for final inspection in writing.
- 1.8.6 Selected manufacturers shall be required to provide qualified personnel to observe field conditions, including suitability of surfaces and material installation at start of field work and completion of field work. Manufacturer's representative shall submit written report (s) to the Designer listing observations and recommendations. Roofing contractor shall be responsible for ensuring site visits by manufacturer's representative.
- 1.8.7 Work found to be in violation of specifications or not in accordance with established workmanship practices and standards will be subject to complete removal and proper replacement with new materials at Contractor's expense.
- 1.8.8 Failure of Owner or Designer to discover or reject defective work, or work not in accordance with the Contract, shall not be deemed an acceptance thereof, nor a waiver of Owner's rights to Contractor's compliance with the Contract or performance of the work, or any part thereof. No partial or final payment, or partial or entire occupancy, by Owner shall be deemed to be an acceptance of work or of material which is not strictly in accordance with the Contract, nor shall it be deemed to be a waiver by Owner of any of Owner's rights pursuant to this Contract or otherwise.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

END OF SECTION

SECTION 01500 TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 Description:

- 1.1.1 To provide for temporary facilities and controls required for the performance of the project. Such items include but are not necessarily limited to utilities such as heat, water, electricity and telephone, sanitary facilities, contractor's facilities, and enclosures such as tarpaulins, barricades, canopies.
- 1.1.2 All equipment furnished by Contractors shall comply with all pertinent safety requirements.
- 1.1.3 Ladders, planks, hoists, and all similar items furnished by individual trades in the execution of their own portions of the work are not a part of this section.

1.2 Product Handling:

- 1.2.1 Contractor shall exercise all means necessary to maintain temporary facilities and controls in proper and safe condition throughout the progress of the project.
- 1.2.2 All required connections to existing utility systems shall be made with minimum disruption. If disruption of existing service is required notice shall be given to the Owner and connections shall not be made without Owner's approval. If necessary, Contractor shall provide for alternate temporary service.
- 1.2.3 If the required utility is not available from the Owner, the Contractor shall provide for alternate temporary service for the duration of the project.

PART 2 PRODUCTS

- 2.1 The Owner shall furnish water required for construction at no cost to the contractor. The Contractor shall be responsible for transporting the water to the point of use.
- 2.2 The contractor shall be responsible for providing his own electricity.
- 2.3 All temporary facilities shall be subject to Owner's approval.
- 2.4 Sanitary Facilities - Contractor shall provide and maintain proper temporary sanitary facilities in the quantity required for use of all personnel. All facilities shall be maintained in a sanitary condition at all times. Location TBD during pre-construction conference.

2.5 Enclosures:

- 2.5.1 Contractor shall furnish, install and maintain for the duration of the project, all scaffolds, ladders, tarpaulins, barricades, warning signs, platforms, bridges, canopies, steps, and other temporary construction required to properly facilitate completion of the project in compliance with all safety and other regulations.
- 2.5.2 Contractor shall provide all necessary safeguards to warn and prevent pedestrians and Owner personnel from being exposed to dangers or hazards created by this project.

2.6 Signs - No signs or advertising of any kind shall be allowed on the project site unless approved in advance by the Owner.

2.7 Construction Aids:

- 2.7.1 Contractor shall provide equipment for access to the roof unless otherwise directed by Owner.
- 2.7.2 Contractor shall provide for debris removal services and containers. Placement and servicing of containers shall be coordinated with the Owner.
- 2.7.3 Residue and debris from all operations shall not be allowed to accumulate on the project site. Debris shall be removed and properly disposed of daily in accordance with all Federal, State and Local regulations.
- 2.7.4 Dust, dirt and debris created by project construction shall be properly contained or controlled by the Contractor. Method(s) of control shall be approved by the Designer and Owner.

2.8 Safety and Protection of Facilities:

- 2.8.1 Comply with the General Conditions and Supplementary Conditions of this specification concerning safety and protection.
- 2.8.2 The Contractor shall take all necessary precautions and shall be totally responsible for guarding against fires and shall provide suitable and adequate fire extinguishers conveniently located on the roof at staging areas, and storage areas.
- 2.8.3 Roof traffic shall be confined to work areas. Contractor shall be responsible for leaks and repairs that develop in traffic areas during and after project completion.

- 2.8.4 Work shall be coordinated as to prevent marking, foot traffic, and storage of materials and equipment on newly completed roof areas.
- 2.8.5 The Contractor shall provide the Owner and the Designer with off hours telephone numbers of his project supervisor, foreman, etc., to allow contact by the Owner if an emergency arises.
- 2.9 Storage:
- 2.9.1 The Contractor shall be responsible for proper storage of equipment, materials, and devices furnished by himself and/or his subcontractors and suppliers.
- 2.9.2 To the maximum extent reasonably possible, the Contractor shall not store combustible or flammable materials inside the building, or on roof levels.
- 2.9.3 All storage areas are subject to approval by the Owner or his authorized representative.
- 2.9.4 Cover and protect all materials from rain, snow, etc.
- 2.10 Parking - Contractor's construction vehicles shall enter the project site and park in areas as directed by the Owner. The Contractor shall be responsible for coordination of traffic by his subcontractors, suppliers, etc., so as not to disrupt ongoing operations of the Owner.
- 2.11 Plans, Specifications and Submittals - One electronic copy of the plans and specifications will be made available to the Contractor without cost. Additional copies may be acquired upon request. Cost of reproduction and handling of the additional copies shall be borne by the Contractor. The Contractor shall be responsible for maintaining at least one current set of plans and specifications and reviewed submittals on the roof for the duration of construction.

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01600 MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 Products:

1.1.1 Products include materials, equipment and systems.

1.1.2 All materials must comply with specifications and referenced standards as minimum requirements. The latest edition of referenced standards apply unless specifically stated otherwise.

1.1.3 Do not use materials and equipment removed from existing structure, except as specifically required or allowed by contract documents.

1.1.4 All materials and construction procedures used in the roofing work for this project shall comply with Factory Mutual for Class I and 1-60 construction, UL Class A, and State and Local standards and codes.

1.2 Workmanship - Work shall be performed by persons qualified and trained to install the specified products which will result in the workmanship and quality specified and to afford manufacturer's guaranty.

1.3 Manufacturer's Instructions:

1.3.1 Work shall be performed in accordance with material manufacturers' specifications and associated details, and submitted in accordance with Section 01300 of this specification, unless otherwise noted in this specification.

1.3.2 Conflicts between the specifications and manufacturers' instructions shall be brought to the attention of the Designer. Work shall not proceed until conflicts are satisfactorily resolved by the Designer and Owner.

1.4 Transportation, Delivery and Handling:

1.4.1 Contractor shall be responsible for all aspects of material and equipment transportation, delivery, unloading, handling, storage, etc., necessary to get materials and equipment to the roof.

1.4.2 Products shall be transported by methods to avoid product damage; deliver all materials with manufacturer's labels intact and legible.

1.4.3 Contractor shall provide equipment and personnel to handle products by methods to prevent damage. Damaged material shall be subject to rejection by the Designer and Owner.

- 1.4.4 Arrange deliveries of materials in accordance with construction schedules and in ample time to facilitate inspection prior to installation.

1.5 Storage and Protection:

- 1.5.1 All materials shall be stored so as to maintain clean, dry, off-ground, weather tight conditions and to protect against loss, damage, and wetting. Wet materials shall be marked, rejected for installation, and removed from the project site.
- 1.5.2 Materials temporarily stored on the roof shall be located in approved areas and shall be distributed in such a manner as to stay within the indicated load limits of the roof construction. They shall be stored on clean, dry, and raised platforms so as to prevent wetting or moisture absorption and yet provide sufficient ventilation to prevent condensation. These materials shall be covered so as to be completely weather tight with coverings that are "breathable" (such as canvas). Factory applied wrapping or polyethylene covers shall be unacceptable as the only storage covering. Methods and materials used for weather protection shall be approved by the Designer. All stored carton asphalt shall be covered.
- 1.5.3 No more than three day's supply of material shall be stored on the roof at any time.
- 1.5.4 Use of the project site by Owner shall not be compromised by the provisions of this section.

1.6 Product Options:

- 1.6.1 Within seven (7) days after award of contract, Contractor shall submit list of materials proposed in accordance with Section 01300.
- 1.6.2 Options:
 - 1.6.2.1 Products specified only by referenced standard: Any product meeting that standard which has been reviewed and accepted.
 - 1.6.2.2 Products specified by naming several manufacturers: Products of any named manufacturer meeting specifications.
 - 1.6.2.3 Products of other manufacturers: Submit a written request for substitution stating manufacturer, product trade name, and product's ability to meet or exceed the specifications.

1.7 Substitutions:

- 1.7.1 Substitutions of other non specified products shall be considered only when specified products become unavailable due to no fault of Contractor and if the non-specified product meets or exceeds all criteria of the specified products.
- 1.7.2 Contractor shall document each request with complete data substantiating compliance of proposed substitution with contract documents.
- 1.7.3 Request for substitution constitutes a representation that Contractor:
 - 1.7.3.1 Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product(s).
 - 1.7.3.2 Shall provide the same warranty for the substitution as for specified product(s).
 - 1.7.3.3 Shall coordinate installation and make other changes which may be required for work to be complete in all respects.
 - 1.7.3.4 Waives claims for additional costs which may subsequently become apparent.
 - 1.7.3.5 Has obtained the written approval of the membrane and/or insulation manufacturer.
- 1.7.4 Substitutions shall not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.
- 1.7.5 Designer shall determine acceptability of proposed substitution and will notify Contractor of acceptance or rejection in writing within a reasonable time.
- 1.7.6 Failure to comply with submittal process will constitute grounds for rejection of work and products.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01701 PROJECT CLOSEOUT PROCEDURES

PART 1 GENERAL

- 1.1 Description - To provide a specific format for substantial and final inspection.
- 1.2 Related requirements specified elsewhere:
 - 1.2.1 Completion - Waiver of Claims, General Conditions
 - 1.2.2 Cleaning - Section 01710
 - 1.2.3 Project Record Documents - Section 01720
 - 1.2.4 Warranties - Section 01750
 - 1.2.5 Substantial Completion - Conditions of the Contract
- 1.3 Quality Assurance:
 - 1.3.1 All documents submitted to the Designer shall be signed by a person authorized to endorse contracts on behalf of the Contractor.
 - 1.3.2 All formats for documents shall be approved by the Designer.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

- 3.1 Substantial completion:
 - 3.1.1 The Contractor shall submit written certification to the Owner through the Designer when the project or designated portion of the project is substantially complete. A list of major items to be completed or corrected shall be stated.
 - 3.1.2 Owner and Designer shall make an inspection within ten (10) days after receipt of certification.
 - 3.1.3 Should the Owner and Designer determine that the work is substantially completed the designer shall prepare and issue a certificate of substantial completion containing:
 - 3.1.3.1 Date of Substantial Completion
 - 3.1.3.2 Contractor's list of items to be completed or corrected and any

amendments by Owner or Designer.

- 3.1.3.3 The time to be allowed for Contractor to complete or correct listed items.
- 3.1.3.4 Time and date Owner will assume possession of the work or designated portion thereof.
- 3.1.3.5 Signatures of Owner, Designer and Contractor.
- 3.1.4 The Contractor shall then complete or correct those items so listed within the designated time and inform the Designer upon completion.
- 3.1.5 Should the Owner and Designer determine that the work is not substantially complete, the Designer shall immediately notify the Contractor in writing stating reasons. Contractor shall then complete the work and send a second written notice to the Owner through the designer certifying that the project, or designated portion thereof, is substantially complete. The Owner and Designer shall reinspect the work within ten (10) days after receipt of certification.

3.2 Final Inspection:

- 3.2.1 The Contractor shall submit written certification to the Owner through the Designer that:
 - 3.2.1.1 The contract documents have been reviewed.
 - 3.2.1.2 Work has been completed in accordance with the contract documents.
 - 3.2.1.3 The project has been inspected for compliance with the contract documents.
 - 3.2.1.4 The project is ready for final inspection.
- 3.2.2 The Owner and Designer shall make a final inspection within ten (10) days after receipt of certification.
- 3.2.3 Should the Owner and Designer determine that the work is finally complete in accordance with the requirements of the contract documents the Designer shall request that the Contractor submit the appropriate project closeout documentation.
- 3.2.4 Should the Owner and Designer determine that the work is not finally complete the Designer shall immediately notify the Contractor in writing stating reasons. The Contractor shall then take immediate measures to remedy the stated deficiencies and send an additional written notice to the Owner through the Designer certifying that the work is complete. The

Owner and Designer shall reinspect the work within ten (10) days after receipt of certification.

- 3.3 Reinspection Costs - Should Owner and Designer be required to perform additional inspections due to noncompliance of work with the certifications of the Contractor, the Contractor may be required to compensate the Owner and Designer for such additional services. Such costs shall be deducted from final payment to Contractor.
- 3.4 Closeout Submittals (all shall comply with North Carolina State Construction Office standards):
- 3.4.1 Project record documents - As required by Section 01720.
 - 3.4.2 Warranties - As required by Section 01750.
 - 3.4.3 Evidence of payment and release of liens.
 - 3.4.4 Contractors affidavit of payment of debts and claims.
 - 3.4.5 Contractor shall be responsible for proper execution of all submittals required by this section prior to delivery to the Owner through the Designer.
 - 3.4.6 Contractor shall submit a final statement of accounting to the Owner through the Designer. The statement shall reflect all adjustments including but not limited to:
 - 3.4.6.1 Original contract sum.
 - 3.4.6.2 Change orders noting such items as:
 - A. Unit Prices
 - B. Cash Allowances
 - C. Deductions for uncorrected work
 - D. Deductions for reinspection payments
 - E. Other adjustments
 - F. Total adjusted contract sum
 - G. Previous payments
 - 3.4.7 The Owner shall prepare a final change order reflecting approved adjustments not previously noted by change orders.
- 3.5 Final Application for Payment
- 3.6 Contractor shall submit final application for payment in accordance with the specifications.
- 3.7 Designer shall issue a final certificate in accordance with the specifications.

END OF SECTION

SECTION 01710 CLEANING

PART 1 GENERAL

- 1.1 Description - To maintain the buildings and site in a clean condition throughout the duration of the project. The Contractor shall comply with all requirements for cleanliness described in other section of these specifications.
- 1.2 The contractor shall conduct daily inspections to ensure that the requirements for cleanliness are being met. This requirement will be enforced for project duration.

PART 2 PRODUCTS

- 2.1 The Contractor shall provide all required manpower, material and equipment to maintain the specified standard of cleanliness.
- 2.2 Contractor shall use only those materials and equipment which are compatible with the surface being cleaned as recommended by the manufacturer or approved by the Designer.

PART 3 EXECUTION

- 3.1 Progress Cleaning:
 - 3.1.1 Stored items shall be kept in an orderly arrangement allowing maximum access and shall not impede drainage or traffic.
 - 3.1.2 Scrap, debris, waste material and other items shall not be allowed to accumulate on-site.
 - 3.1.3 Contractor shall provide storage containers for all items awaiting removal from the site. Storage containers shall be approved by the Designer.
- 3.2 Contractor shall inspect all arrangements of materials stored on the project site on a weekly minimum basis and shall service all arrangements in accordance with the requirements of Paragraph 3.1.1 of this section.
- 3.3 Final Cleaning:
 - 3.3.1 Except as specifically provided otherwise, "clean" shall be interpreted to as meaning the level of cleanliness generally attainable by skilled cleaners using commercially available building maintenance equipment and materials.
 - 3.3.2 All tools, equipment, materials, scrap, debris and waste shall be removed from the project site and a final progress cleaning conducted in accordance with this section.

- 3.3.3 Unless otherwise directed by the Designer the Contractor shall clean all adjacent areas on the site and completely remove all resultant debris.
- 3.4 Contractor shall visually inspect all exterior surfaces and remove all traces of dirt, waste materials, smudges, splashed materials and other foreign matter. The Designer may require that light sandblasting or other cleaning be performed at no cost to the Owner. If such cleaning is required, the Contractor shall take all necessary precautions to prevent damage to adjacent materials, property and vegetation.

END OF SECTION

SECTION 01720 PROJECT RECORD DOCUMENTS

PART 1 GENERAL

- 1.1 Drawings and general provisions of the contract including General, Supplemental and Special Conditions and other Division 1 Specification sections apply to work of this section.
- 1.2 Description - To maintain an accurate record of the project throughout its duration. Items to be noted include but are not necessarily limited to:
 - 1.2.1 Plans, Specifications, Bidding Documents and Construction Contract Documents
 - 1.2.2 Minutes of prebid, preconstruction and construction meetings
 - 1.2.3 Addenda
 - 1.2.4 Change Orders
 - 1.2.5 Field Orders and Instructions
 - 1.2.6 Construction Schedule
 - 1.2.7 Shop Drawings
 - 1.2.8 Product Samples
 - 1.2.9 Progress Reports
- 1.3 Quality Assurance:
 - 1.3.1 The Contractor shall delegate responsibility for maintenance of the record documents to one person on the Contractor's staff as approved by the Designer.
 - 1.3.2 All entries shall be made within 24 hours after receipt of information.
- 1.4 Submittals:
 - 1.4.1 The Contractor shall secure Designer's approval of the record documents as currently maintained prior to submitting each request for progress payment.

- 1.4.2 The Contractor shall submit the final record documents to the Designer for approval prior to submitting a request for final payment. Submit 1 copy of "as-built" documents to Designer with letter of transmittal indicating date, project title, Contractor's name and address, list of documents, and signature of Contractor.
- 1.5 Product Handling - The Contractor shall take all necessary precautions to protect the record documents from deterioration loss and damage until completion of the work and transfer of the recorded data to the final record documents.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

- 3.1 Maintenance of Record Documents - The Contractor shall maintain the record documents at the project site and make all documents available to the Designer during all working hours.
- 3.2 Review and Approval - The Contractor shall submit the completed total set of record documents to the Designer. The Contractor shall participate in review meeting(s) as required by the Designer. The Contractor shall make all required changes to the documents and promptly deliver the final project records to the Designer.

END OF SECTION

SECTION 01750 WARRANTIES

PART 1 GENERAL

- 1.1 Drawings and general provisions of the contract including General, Supplemental and Special Conditions, and other Division 1 specification sections apply to work of this section.
- 1.2 Upon completion of the work and prior to the final payment the Contractor shall submit the following items to the designer:
 - 1.2.1 Documentation of completion of all items noted on punch lists prepared by the Designer.
 - 1.2.2 Contractor's warranty to Owner.
 - 1.2.3 Manufacturer's warranty to Owner.
- 1.3 Submit all items required by this section as a part of project record documents, Section 01720.
- 1.4 Warranties and Bonds:
 - 1.4.1 All warranties shall be issued to the Owner or party designated by the Designer.
 - 1.4.2 All warranties shall be issued bearing a signature of an officer of the company and shall not require the signature of the owner nor designer.
 - 1.4.3 Contractor's Warranty:
 - 1.4.3.1 Use the attached warranty form.
 - 1.4.3.2 The 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 date of acceptance of the project by the Owner.
 - 1.4.4 Membrane Manufacturer's Guarantee:
 - 1.4.4.1 The Contractor shall include in the base bid the cost of the manufacturer's 20-year no dollar limit material and workmanship total system warranty. The warranty must not require Owner's signature to activate.

1.4.4.2 The system shall include all new components above the roof deck such as the vapor retarder, insulation overlayment, membrane and flashings, and adhesives. Warranty shall not be limited to only those components manufactured or sold by the membrane manufacturer.

1.4.4.3 The Membrane Manufacturer shall agree that the work covered under this contract shall remain free from any water penetration and material defects caused by defective workmanship or materials for a period of twenty (20) years from the date of final acceptance by the Owner. The Contractor's warranty shall neither replace nor negate any agreement furnished by the manufacturer.

1.4.5 Finish Guarantee for Prefinished Sheet Metal Flashings:

A. The Contractor shall include in the base bid the cost of the manufacturer's 20-year finish guarantee.

B. The finish guarantee shall include coverage for the following:

i. Refinishing of fluoropolymer coating due to checking, crazing, peeling, blistering, chalking, chipping, fading or adhesion.

ii. Color change shall not exceed 5 NBS units per ASTM D2244. Chalking shall not be less than a rating of 8 per ASTM D659.

1.4.6 Sealant - Manufacturer shall guarantee that the sealant covered under this contract shall remain free from any physical defects caused by defective workmanship or materials for a period of ten (10) years from the date of final acceptance by the Owner.

1.5 Emergency repairs:

1.5.1 Emergency repairs to defects and leaks shall be performed within 24 hours of receiving notice from the Owner. As soon as weather permits, permanent repairs and restoration of affected areas shall be accomplished in a manner in conformance with the original contract requirements. This work shall be done without additional cost to the Owner, except if it is determined that such leaks and defects were caused by abuse, lightning, hurricane, tornado, hail storm, or other unusual phenomena.

1.5.2 The warranties shall also state that the Owner has the right, at any time during the 2 year Contractor's warranty period and the Manufacturer's

warranty period, to make emergency repairs to protect the contents of the building or the building itself from damage due to leaking. The cost of emergency repairs made during the first two years of the warranty period shall be borne by the Contractor and action by the Owner shall not invalidate the warranty.

- 1.6 The effective date of all warranties shall be the same and shall be on the date of the final inspection when the Owner, Designer, Contractor and Manufacturer agree that all work has been completed in substantial compliance with the plans and specifications.
- 1.7 Final payment will be made to the Contractor only after three (3) copies of the warranties and guarantees have been submitted and the membrane manufacturer acknowledges that all bills are paid. All such documents shall show the project name and location and the Owner's name.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SEE THE ATTACHED CONTRACTOR'S GUARANTEE

CONTRACTOR'S GUARANTY

Whereas, _____
of _____
herein called "Contractor", has completed application of the following roof:
Owner: _____
Address of Owner: _____
Type & Name of Building: _____
Building Location: _____
Area of Roof: _____ Date of Completion: _____
Date Guarantee Expires: _____

Whereas, at the inception of the work, the Contractor agreed to guarantee the aforesaid roof against faulty workmanship for a limited period and to guarantee that the materials are those required by the agreement, subject to the conditions herein set forth:

Now, therefore, the Contractor hereby guarantees, subject to the conditions herein set forth, that during a period of two years from the date of completion of said roof, it will, at its own cost and expense, make or cause to be made such repairs to said roof resulting solely from faults or defects in workmanship applied by or through the Contractor as may be necessary to maintain said roof in a watertight condition, and in the event of failure of any material, the Contractor will give reasonable assistance to the Owner in obtaining from the respective manufacturer whatever adjustment is reasonable in light of the manufacturers warranty.

This guarantee is made subject to the following conditions:

1. Specifically excluded from this guarantee are any and all damages caused by lightning, wind in excess of the design wind speed as defined by the International Building Code, hailstorm, or other unusual phenomena of the elements; foundation settlement; failure or cracking of the roof deck; defects or failure of material used as roof base over which roof is applied; defects of parapet walls, coping caps, chimneys, skylights, vents, supports or other parts of the building; or fire. If the roof is damaged by reason of any of the foregoing this guarantee shall thereupon become null and void for the balance of the guarantee period unless such damage is repaired by the Contractor at the expense of the party requesting such repairs.
2. The warranties contained are in lieu of all other warranties, express or implied, including any warranties of merchantability or fitness for a particular use. Nothing in this instrument shall render the Contractor liable for consequential damages to the building or contents resulting from any faults or defects in material or workmanship.
3. No work shall be done on said roof, including, but without limitation, openings made for flues, vents, drains, sign brackets or other equipment fastened to or set on the roof, unless the Contractor shall be first notified, shall be given the opportunity to make the necessary roofing application recommendations with respect thereto, and such recommendations are complied with. Failure to observe this condition shall render this guarantee null and void. The Contractor shall be paid for time and material expended in making recommendations or repairs occasioned by the work of others on said roof.
4. This guarantee shall not be or become effective unless and until the Contractor has been paid in full for said roof in accordance with the agreement pursuant to which such roof was applied.
5. Additional conditions or exclusions: None

In Witness Whereof, this instrument has been duly executed this _____ day of _____, 20____.

Authorized Signature

**DIVISION 2
SITE WORK**

**SECTION 02070
SELECTIVE DEMOLITION**

PART 1 GENERAL

- 1.1 Drawings and general provisions of the contract including General, Supplemental and Special Conditions, and other Division 1 specification sections apply to work of this section.
- 1.2 Work Included:
 - 1.2.1 Roof Area A:
 - 1.2.1.1 Remove membrane, flashings, insulation, any deteriorated blocking and nailers, and unbonded vapor retarder.
 - 1.2.1.2 Remove skylights.
 - 1.2.1.3 Remove gutter and downspouts.
 - 1.2.1.4 Remove coping cap at west side brick parapet only; coping cap on brick wall between areas A and B to remain.
 - 1.2.2 Roof Areas B and C:
 - 1.2.2.1 Remove membrane, flashings, insulation, any deteriorated blocking and nailers, and unbonded vapor retarder.
 - 1.2.2.2 Remove skylights.
 - 1.2.2.3 Remove scupper liners, conductor heads, and downspouts.
 - 1.2.2.4 Remove coping covers on parapet walls.
 - 1.2.3 Brick and Precast Concrete Walls: Remove existing vertical sealant joints.
- 1.3 Related Work Specified Elsewhere:
 - 1.3.1 Rough Carpentry - Section 06114
 - 1.3.2 Sheet Metal Flashing and Trim - Section 07621
- 1.4 Protection:
 - 1.4.1 Limit size of work sections to safeguard adjacent materials, structures, etc. and to minimize dust and noise.
 - 1.4.2 Protect existing facilities from damage during work. Do not overload existing paving, curbs, sidewalks, etc., with vehicle traffic. Do not overload new or existing construction with demolition debris, equipment, etc.
 - 1.4.3 Damage shall be repaired at Contractor's expense in accordance with

General Conditions and Supplementary Conditions of the Contract.

- 1.4.4 Demolition adjacent to areas to remain shall be performed in a neat manner with straight lines to facilitate tie-ins of replacement materials.
- 1.4.5 Demolition shall be performed by personnel familiar with the replacement of materials being removed.
- 1.4.6 Contractor shall furnish necessary temporary protection from weather at all areas of demolition to protect interior of building from elements of weather at all times. Loss due to water damage shall be Contractor's responsibility.
- 1.4.7 Contractor shall maintain safety precautions during performance of work in accordance with General Conditions and Supplemental Conditions of the Contract.

PART 2 PRODUCTS

2.1 Existing Materials:

- 2.1.1 Except where noted otherwise, materials being demolished shall become the property of the Contractor. Remove debris in such a manner as to not accumulate on roof.
- 2.1.2 Carefully remove, clean, store, and protect equipment (fans, motors, blowers, etc.) for reinstallation, as necessary.

PART 3 EXECUTION

3.1 Demolition:

- 3.1.1 The Owner's representative and the Contractor shall document the actual quantities removed for materials bid on a unit price basis.
- 3.1.2 Remove and dispose of wet, rotten, warped, damaged, or otherwise deteriorated wood nailers, blocking, etc.
- 3.1.3 Remove and dispose of the membrane, flashings, and fasteners as directed in the specification sections herein

END OF SECTION

**DIVISION 5
STEEL**

**SECTION 05515
ROOF ACCESS LADDERS**

PART 1 GENERAL

- 1.1 Drawings and general provisions of the contract, including Section A -Information for Bidders and other Division 1 specification sections apply to work of this section.
- 1.2 Work Included: Fabrication and installation of aluminum or stainless steel roof access ladder.
- 1.3 Related Work:
 - 1.3.1 Sheet Metal Flashing and Trim - Section 07621
- 1.4 References:
 - 1.4.1 Code of Federal Regulations (CFR) 1926.1053 - Safety and Health Regulations for Construction Ladders.
 - 1.4.2 ANSI A14.3 - American National Standard for Ladders - Fixed - Safety Requirements.
- 1.5 Submittals:
 - 1.5.1 Submit under provisions of Section 01300.
 - 1.5.2 Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1.5.3 Shop Drawings: Detailed drawings indicating project location and application.
- 1.6 Quality Assurance:
 - 1.6.1 Manufacturer Qualifications: Minimum 5 years experience manufacturing similar products.
 - 1.6.2 Installer Qualifications: Experience with ladder assemblies and regulatory requirements of installation and operation.
- 1.7 Delivery, Storage, and Handling: Store products in manufacturer's unopened packaging until ready for installation.

1.8 Warranty:

- 1.8.1 Subject to the conditions below, ladder manufacturer warrants its products against defects in workmanship and material for a period of two years from the date of installation. Buyer shall provide written notice of any claim under this warranty within 60 days after it becomes aware of the defect and shall provide reasonable access to the product for the Seller's investigation.
- 1.8.2 Manufacturer will have sole discretion to approve warranty coverage. If the warranty claim is allowed, either in full or in part, manufacturer shall provide to Owner, an identical or substantially equivalent replacement.
- 1.8.3 This warranty only applies to the original purchaser and only to equipment manufactured by manufacturer. It does not apply to equipment where the defect was caused by accidents, misapplication, alterations, abuse, or misuse.

PART 2 PRODUCTS

2.1 Exterior Wall Mounted Ladder at Roof Area C to Area B:

- 2.1.1 Wall mounted ladder and mounting brackets shall be constructed of aluminum or stainless steel. Refer to drawings for details.
- 2.1.2 Approved Manufacturers
 - 2.1.2.1 Okeefe's, Inc. 325 Newhall Street, San Francisco, CA, 888-653-3333.
 - 2.1.2.2 Cotterman Co., Crosswell, MI, 800-552-3337.
 - 2.1.2.3 Precision Ladders LLC, Morristown, TN, 423-586-2265.
 - 2.1.2.4 Approved alternate manufacturer.
- 2.1.3 Rungs shall be a minimum of 5/8" diameter and be spaced at 12" with the first rung being 12" above the floor, walkway or roof surface. Rungs shall be secured to side rails by inserting the rungs into holes drilled into the side rails and welded all around. Rungs shall be capable of withstanding a load of 1000 pounds without deformation.
- 2.1.4 Side rails shall be a minimum of 18" apart and shall extend 42" above the parapet. Side rails above the top rung shall be stiffened to provide lateral support. Side rails shall be capable of withstanding a load of 200 pounds applied in any direction at any point on the rail. Ladder shall be equipped with a walkover platform as detailed on the project drawings.

- 2.1.5 A minimum of four mounting brackets shall be provided for each ladder. They shall be sized to permit the ladder to support a load of 1000 pounds and provide adequate clearance from the mounting wall.
- 2.1.6 Ladder Mounting Bracket Anchors: Shall be stainless steel bolts 1/2" diameter minimum. Install in accordance with manufacturer's printed instructions, anchors shall not be closer than 12 inches to a free edge and shall be no closer to each other than 16 inches:
- 2.1.7 Torque controlled expansion anchors with a cone expander such as for solid concrete masonry base material, 4 3/4" embedment or minimum embedment specified by the anchor manufacturer whichever is least:
 - A. Wedge All by Simpson Strong Tie.
 - B. Power-Stud by Powers Fasteners.
 - C. Kwik Bolt 3 by Hilti.
- 2.1.8 Welding process shall be quality controlled and all welds shall be capable of withstanding a minimum of 2800 pounds in shear.

PART 3 EXECUTION

3.1 Examination:

- 3.1.1 Do not begin installation until supporting structure and inserts have been properly prepared.
- 3.1.2 If support preparation is the responsibility of another installer, notify Designer of unsatisfactory preparation before proceeding.

3.2 Installation:

- 3.2.1 Install in accordance with manufacturer's instructions.
- 3.2.2 Install ladder and accessories in accordance with manufacturer's instructions and approved submittals.
- 3.2.3 Securely anchor support brackets with fasteners of type and size recommended by manufacturer.
- 3.2.4 Place brackets at top and bottom and at 60" maximum intermediate points.
- 3.2.5 Allow 7 inches minimum clearance from wall to center line of rungs.
- 3.2.6 Inspect ladder to verify proper and secure installation.

3.2.7 Install safety post extension by attaching to top 2 rungs of ladder, centered between side rails.

3.3 Protection:

3.3.1 Protect installed products until completion of project.

3.3.2 Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

**DIVISION 6
WOOD**

**SECTION 06114
ROUGH CARPENTRY**

PART 1 GENERAL

- 1.1 Work Included:
 - 1.1.1 Installation and securement of new nailers, blocking, curbs, etc., where detailed and required.
 - 1.1.2 Replacement and securement of deteriorated and existing nailers, blocking, and other rough carpentry items.

- 1.2 Related Work Specified Elsewhere:
 - 1.2.1 Selective Demolition - Section 02070
 - 1.2.2 Board Insulation - Section 07212
 - 1.2.3 Sheet Metal Flashing and Trim - Section 07621

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

- 1.4 Quality Assurance:
 - 1.4.1 Contractor shall provide sufficient qualified workmen and supervisors who shall be present at all times during execution of this portion of the work and who shall be familiar with the type of construction involved and the materials and techniques specified.
 - 1.4.2 The Owner shall make no allowance for lack of skill of the workmen.
 - 1.4.3 Shall bear the presence of AWWPA quality mark LP-22 on each piece as required. Contractor shall review and approve all rough carpentry items for any damaged or split items which shall be rejected.

- 1.5 Submittals - Submittals shall be in accordance with the General Conditions and Section 1300 of the Technical specifications.

PART 2 PRODUCTS

2.1 Materials:

- 2.1.1 Shall be No. 2 or better Southern Yellow Pine, kiln-dried prior to a moisture content of not more than 19 percent.
- 2.1.2 Shall be sound, thoroughly seasoned, dressed to nominal finish dimension, and free of warpage, cupping, and bowing.
- 2.1.3 Plywood - Plywood shall be APA trademarked RATED SHEATHING grade C-C or better, 32/16, and shall be manufactured with exterior glue (Exposure 1). Plywood shall be dried after treatment to a moisture content of 18 percent or less. Minimum thickness 3/4 inch.

- 2.2 Accessories: Masonry Anchors - Shall be a stainless steel drive anchor with a removable screw with a Phillips type head. Length shall be such that the body is embedded in the masonry at least 1-1/4" and develops a pullout resistance of at least 650 pounds and has a shear resistance of at least 1,400 pounds. Shall be a minimum 1/4" diameter by 1½" long expanding anchor.

PART 3 EXECUTION

3.1 Inspection:

- 3.1.1 Verify that existing construction is sound and dry so as to adequately support new roofing components. Any existing rough carpentry items found to be deteriorated shall be removed and replaced with new materials to match existing.
- 3.1.2 Verify that curbs are sound, firmly anchored, smooth, and clean on surfaces to receive new nailers.
- 3.1.3 The Owner's representative and the Contractor shall document the actual quantities of materials installed and/or replaced. Replace any deteriorated rough carpentry items with new material.

3.2 Installation:

- 3.2.1 New nailers and blocking shall be installed at appropriate roof perimeters, curbs, and similar penetrations to suit the thickness of the new roof system to be installed.
- 3.2.2 All new and existing blocking shall be securely anchored with appropriate fasteners to resist a force of 100 lbs/linear foot in any direction. Fasteners shall be spaced at a maximum of 12" o.c. staggered and two fasteners shall be positioned 6 inches from each end to prevent board twisting and provide a smooth joint transition.

- 3.2.3 Perimeter wood blocking attachment shall comply with the current FM Global Data Sheet 1-49 and the fastener type and securement spacing and embedment requirements shall comply with the fastener manufacturer's written technical instructions.
- 3.2.4 New nailers shall be installed with a 1/8" vent gap between each length and shall have a minimum length of 24". End joints between successively installed nailers shall be staggered a minimum of 12".
- 3.2.5 Heads of bolts and fasteners shall be countersunk to provide a smooth surface.
- 3.2.6 New wood nailers, blocking, etc., shall be beveled, shaved, planed, or shimmed as necessary to provide smooth transition to adjacent materials.
- 3.2.7 Site-sawn ends or edges shall be treated with one coat of preservative treatment in accordance with AWPA Standard M-4.

END OF SECTION

**DIVISION 7
THERMAL AND MOISTURE PROTECTION**

**SECTION 07192
VAPOR RETARDER**

PART 1 GENERAL

- 1.1 Work Included - Installation of modified bitumen vapor retarder.
- 1.2 Related Work Specified Elsewhere
 - 1.2.1 Selective Demolition - Section 02070
 - 1.2.2 Rough Carpentry -Section 06114
 - 1.2.3 Board Insulation - Section 07212
 - 1.2.4 Sheet Metal Flashing and Trim - Specification 07621
- 1.3 Submittals - The Contractor shall provide submittals in accordance with Section 01300 of this specification.
- 1.4 Quality Assurance
 - 1.4.1 Standards: Comply with standards specified in this section and as listed in the General Requirements.
 - 1.4.2 Qualifications of Manufacturer: Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacturer of similar items and with a history of successful production acceptable to the Owner.
 - 1.4.3 Qualifications of Installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section. As a minimum, the roofing foreman and the membrane applicator shall be certified and trained by membrane manufacturer and shall be experienced in the application of the specified membrane system, and shall be on site at all times. Written certification must be provided.
 - 1.4.4 Wind Uplift Classification: Submit documentation confirming compliance of all components with FM 1-60 Windstorm Resistance Classification utilizing the specific roof membrane system proposed for use on this project.

- 1.4.4.1 Wind uplift pressures as determined by ASCE 7-05 are as shown on the drawings.
- 1.4.5 Fire Resistance: Submit documentation confirming compliance of all components with the following fire resistance standards:
 - 1.4.5.1 Tested in accordance with ASTM E 108 and listed in the most recent Underwriters Laboratories Fire Resistance Directory as Class A.
 - 1.4.5.2 Tested by Underwriters Laboratories in accordance with UL-790 and listed in the most recent Underwriters Laboratories Fire Resistance Directory as Class A.
 - 1.4.5.3 Tested by FM Global and listed in the most recent FM Global Approval Guide as non-combustible or Class I.
- 1.5 Environmental Conditions - Material installation shall proceed only when weather conditions are in compliance with the applicable manufacturer's recommendations for installation and no precipitation is imminent. Materials installed during adverse weather conditions shall be subject to removal and replacement.
- 1.6 Fire Safety
 - 1.6.1 Contractor shall keep not less than two (2) fire extinguishers on the roof, readily accessible and in proper working order, at all times when a propane torch or other open flame equipment is in use. Fire extinguishers shall be 20 lb. size and be rated for types A, B & C.
 - 1.6.2 After completion of all torch or open flame activities, maintain a fire watch person on site for not less than one (1) hour.
 - 1.6.3 After completion of all torch or open flame activities, check all newly installed work for hot spots with the use of an infrared laser type thermometer or similar device.
 - 1.6.4 Refer to NRCA Technical Bulletin "Fire Safety Considerations of Roof Systems Utilizing Torch-Applied Modified Bitumen Sheet Products" and the "Certa Torch Safety Program" published by the Midwest Roofing Contractors Association (MRCA).
 - 1.6.5 Torch handlers to be experienced in this type of application.
 - 1.6.6 Torch shall be used to warm the surface to which the membrane is being applied, preheat portions of the roll which are about to be applied

and melt the modified asphalt on the back of the sheet which will be used to adhere the membrane. The area of the roll where the modified asphalt is being melted is the most critical.

1.6.7 Safety shall be of major importance when heat welding modified bitumen. It is the responsibility of the roofing applicator to enforce fire safety precautions and to ensure safety at all times.

1.6.8 Monitor ground during perimeter work to prevent harm to foot traffic. Do not torch when pedestrians are near torching operations.

1.7 Warranty - Warranties shall be in accordance with Section 01750 of this specification.

PART 2 PRODUCTS

2.1 Materials

2.1.1 Asphalt Primer: Shall be asphaltic primer conforming to requirements of ASTM D-41 as provided by the membrane manufacturer.

2.1.2 Flashing Cement: Shall be asphalt based, fibrated roof cement conforming to the requirements of ASTM D 2822, Type I, SS-C-153, Type 1.

2.1.3 Vapor Retarder Ply: Shall be a modified bitumen base ply such as one of the following or approved equal:

2.1.3.1 Paradiene 20 TG by Siplast, Inc.

2.1.3.2 Elastophene SP 3.0 by Soprema. Inc.

2.1.3.3 Ruberoid Torch Smooth by GAF

2.1.3.4 DynaWeld Base by Johns Manville.

2.1.3.5 Derbibase Ultra by Derbigum.

PART 3 EXECUTION

3.1 Inspection

3.1.1 The deck surface shall be smooth, clean, dry, free of debris and all foreign matter prior to receiving vapor retarder. All roof surfaces shall be swept and inspected prior to the installation of materials, and application of new materials will constitute approval of the surface by the Contractor.

3.1.2 Verify proper installation of wood nailers at roof perimeter, curbs, expansion joint, etc., prior to installing vapor retarder.

3.2 Preparation

- 3.2.1 Cleaning - Verify the removal of all existing membrane, insulation, fasteners, etc., and clean deck with blowers.
- 3.2.2 All existing deck fasteners, if present, shall be removed or cut off flush with the surface of the concrete deck.
- 3.2.3 Prime all concrete deck and masonry surfaces scheduled to receive new vapor retarder at the rate of one gallon per 100 square feet of surface. Allow curing time per manufacturer instructions before applying vapor retarder. Apply primer by sprayer or roller in a manner that will prevent material from flowing between any openings in the concrete deck, especially at walls and penetrations. Maintain a thin application to avoid puddles that will delay drying time.
- 3.2.4 Cover all wood or other flammable materials with a protective sheet of modified asphalt base ply applied prior to application of vapor retarder. Nail base sheet to wood substrate at a rate of one fastener per 1 square foot. Lap sheets minimum of two inches. Fasteners at edges and laps to be every 6 inches o.c. Backroll and "fly-in" sheets at all areas where combustibles are present. Ensure that at no time, flames come in contact with wood nailers or combustible materials.

3.3 Installation

- 3.3.1 Contractor shall adhere to the specifications and installation instructions. Procedures described herein shall be considered minimum requirements for application of materials.
- 3.3.2 Vapor retarder installation shall completely cover all deck in a watertight manner on the same day that the roof demolition work is performed. It shall also extend up all parapets, walls, wood nailers, fall protection posts and other penetrations to 1" above the base ply of membrane as a minimum or as detailed whichever is more stringent.
- 3.3.3 Secure the vapor retarder with a propane torch. Maintain a fire watch on site for a minimum of one (1) hour after completion of any open flame activities. Comply with MRCA/CERTA fire safety guidelines as a minimum standard.
 - a. All side and end laps of the vapor barrier shall be secured and sealed with a propane torch. Bleed out of bitumen shall be visible and shall not be in excess of 1".
 - b. Prior to installing vapor barrier, unroll material to allow membrane to relax for approximately 30 minutes.

- c. Beginning at the low points of the roof, install the plies shingle-fashion with no back water laps. The plies shall have minimum 3 inch side laps. Extend ply at least 12" up walls at perimeters. Vapor retarder shall be fully broomed into place as soon as it is applied to aid adhesion.
- d. End laps shall be a minimum of 6 inches and staggered a minimum of 12".
- e. Perimeters and projections through roof shall be flashed at the vapor retarder level and made completely watertight every day.
- f. Contractor representative shall visit project each day during rain events to ensure the watertight integrity of the roof system during installation.

END OF SECTION

**DIVISION 7
THERMAL AND MOISTURE PROTECTION**

**SECTION 07212
BOARD INSULATION**

PART 1 GENERAL

- 1.1 Work Included - Installation of new constant thickness ISO, tapered ISO crickets at scuppers and curbed penetrations, and gypsum coverboard.
- 1.2 Related Documents - Drawings and general provisions of contract, including General, Supplemental, and Special Conditions and other Division - 1 Specifications sections apply to work of this section.
- 1.3 Related Work Specified Elsewhere:
 - 1.3.1 Selective Demolition - Section 02070
 - 1.3.2 Rough Carpentry - Section 06114
 - 1.3.3 Single Ply Membrane - Section 07531
 - 1.3.4 Sheet Metal Flashing and Trim - Section 07621
- 1.4 Submittals:
 - 1.4.1 Submittals shall be in accordance with Section 1300 of this specification.
 - 1.4.2 Submit the securement type and patterns for securing the insulation system in the field, perimeters and corners of the roof.
- 1.5 Environmental Conditions - Materials installation shall proceed only when weather conditions are in compliance with the manufacturer's recommendations for installation and no precipitation is imminent. Materials installed during adverse weather conditions shall be subject to rejection, removal and replacement.
- 1.6 Warranty - Warranties shall be in accordance with Section 01750 of this specification.
- 1.7 Wind and Fire Resistance - The complete roof system above the deck, including but not limited to insulation, overlayment boards, mechanical fasteners, insulation adhesive, membrane adhesives and roof membrane shall be approved by FM and UL and have ratings of 1-60 and Class A, respectively.

PART 2 PRODUCTS

2.1 Materials:

2.1.1 New Insulation Board - Shall be a faced thermal insulation board composed of rigid cellular polyisocyanurate meeting or exceeding the requirements of ASTM C 1289, Type II, Class 1, Grade 2 (minimum compressive strength of 20 psi). Heavy duty facers shall be on both major surfaces and shall be an asphalt-coated glass fiber mat. Foam core shall have a flame spread of 25 or less. Insulation shall conform to ASTM E-108, Factory Mutual 4450, and Underwriters Laboratories 1256. Thermal resistance shall be computed using Long Term Thermal Resistance (LTTR) values in accordance with ASTM C1303 and CAN/ULC-S770-00. Insulation system shall provide an Average R-Value of 5.6 per inch thickness.

2.1.1.1 Constant thickness insulation (5-1/2" total thickness at roof edge). Each layer shall not be less than 1½" thick.

2.1.1.2 Minimum R-value of total insulation thickness shall be R-30.

2.1.2 Crickets: Shall be a faced thermal insulation board composed of rigid cellular polyisocyanurate meeting or exceeding the requirements of ASTM C 1289, Type II, Class 1, Grade 2 and a minimum compressive strength of 20 psi. Facers shall be on both major surfaces and shall be a heavy duty asphalt-coated glass fiber mat suitable for use with hot asphalt. Foam core shall have a flame spread of 25 or less. Insulation shall conform to ASTM E-108, Factory Mutual 4450, and Underwriters Laboratories 1256.

2.1.2.1 Tapered Insulation at Crickets: Shall have a minimum thickness of ½" thickness at the edges. Provide 0" - ½" thick tapered edge strips beyond cricket edges.

2.1.2.2 All pieces used to form crickets shall be factory manufactured at a slope of two times the slope of the insulation over which crickets are installed (for example crickets installed over tapered insulation with ½ inch of rise per horizontal foot shall have a slope of 1 inch of rise per horizontal foot).

2.1.3 Coverboard - Shall be high density, water resistant, and moisture resistant treated board with inorganic fibrous glass mat facer on both sides. All pieces shall have a maximum size of 4' x 4'. Shall be one of the following:

2.1.3.1 ½" thick Securock as manufactured by U.S. Gypsum Company, 125 South Franklin Street, Chicago, IL 60606, (800) 874-4968.

2.1.3.2 ½" thick DensDeck Prime as manufactured by G-P Gypsum Corporation, 55 Park Place, N.E., Atlanta, GA 30303, (404) 652-4000.

2.1.4 Insulation securement:

2.1.4.1 Adhesive - Shall be as specified by the membrane manufacturer for securement of:

- A. Polyisocyanurate insulation to the concrete deck or vapor retarder (if alternate 2 is accepted).
- B. Polyisocyanurate insulation to itself.
- C. Polyisocyanurate insulation to gypsum cover board.

2.1.5 Adhesive primer as required by the adhesive manufacturer for the materials to be bonded.

PART 3 EXECUTION

3.1 Preparation:

3.1.1 All roof surfaces (deck, gypsum board and polyisocyanurate insulation) shall be inspected prior to the installation of the new materials. Installation shall constitute approval of all roof surfaces by the contractor.

3.1.2 The contractor shall be responsible for documentation (including photographs and daily work logs) which shall be maintained and submitted to the Owner and designer in order to track quantities of all material replaced.

3.2 Inspection - The roof surface shall be smooth, clean, dry, free of debris and all foreign matter. All roof surfaces shall be inspected prior to installation and application of new materials will constitute approval of the surface by the roofing contractor.

3.3 Installation:

3.3.1 General:

3.3.1.1 Install no more insulation than can be completely dried-in with membrane in the same day.

3.3.1.2 Adjacent insulation boards shall be tightly abutted, with gaps greater than 1/4 inch filled by cutting out enough material to allow placement of a minimum 3 inch wide piece of similar insulation.

3.3.1.3 Insulation shall be laid in parallel courses with joints staggered between courses and staggered from underlying layer.

3.3.1.4 Board-to-board height variations greater than $\frac{1}{16}$ inch at top

surface of insulation shall be shaved to provide a smooth transition between board surfaces.

3.3.2 Coverboard:

3.3.2.1 The coverboard shall be secured to the new polyisocyanurate insulation with a low rise foam adhesive.

A. The following adhesive schedule indicates the minimum number of rows (ribbons) in each wind zone. Submit Membrane Manufacturer's adhesive patterns for an FM tested assembly to meet NC Building Code requirements:

- i Field - beads at 12" o.c. with the first row 6" from board edge (long dimension) per 4' x 4' board
- ii Perimeter - beads at 6" o.c. with the first row 6" from board edge (long dimension) per 4' x 4' board
- iii Corner - beads at 4" o.c. with the first row 6" from board edge (long dimension) per 4' x 4' board

B. The dimension for increased securement in perimeter and corner regions shall be as noted in the drawings.

END OF SECTION

SECTION 07540 SINGLE PLY SHEET ROOFING

PART 1 GENERAL

- 1.1 Work Included - Installation of new TPO membrane and associated flashings.
- 1.2 Related Work Specified Elsewhere:
 - 1.2.1 Rough Carpentry -Section 06114
 - 1.2.2 Board Insulation - Section 07212
 - 1.2.3 Sheet metal Flashing and Trim - Section 07621
- 1.3 Submittals - Submittals shall be in accordance with Section 01300 of this specification.
- 1.4 Quality Assurance
 - 1.4.1 Standards: Comply with standards specified in this section and as listed in the General Requirements.
 - 1.4.2 Qualifications of Manufacturer: Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacturer of similar items and with a history of successful production acceptable to the Owner.
 - 1.4.3 Qualifications of Installers
 - 1.4.3.1 Contractor shall show written evidence from the membrane manufacturer of being an authorized applicator.
 - 1.4.3.2 Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section. As a minimum, the roofing foreman and the membrane applicator shall be certified and trained by the membrane manufacturer and shall be experienced in the application of the specified membrane system, and shall be on site at all times. Written certification must be provided.
 - 1.4.4 Contractors shall take all necessary measures to prevent from marking or staining the existing membrane.
 - 1.4.5 In acceptance or rejection of the work of this section, the Owner will make

no allowance for lack of skill on the part of the workmen.

- 1.5 Environmental Conditions - Materials installation shall proceed only when weather conditions are in compliance with the applicable manufacturer's recommendations for installation and no precipitation imminent. Materials installed during adverse weather conditions shall be subject to removal and replacement.
- 1.6 Warranty - Warranties shall be in accordance with Section 01750 of this specification.
- 1.7 Wind and Fire Resistance - The complete roof system above the deck, including but not limited to insulation, overlayment boards, mechanical fasteners, insulation adhesive, membrane adhesives and roof membrane shall be approved by FM and UL and have ratings of 1-60 and Class A, respectively.

PART 2 PRODUCTS

2.1 Materials

2.1.1 Membrane - Shall be one of the following:

2.1.1.1 UltraPly TPO, 0.060" thick minimum by Firestone Building Products.

2.1.1.2 Sure-Weld TPO, 0.060" thick minimum by Carlisle SynTec.

2.1.1.3 VersiWeld TPO, 0.060" thick minimum by Versico LLC.

2.1.2 Related materials. Materials such as bonding adhesive, slip sheet, mastic, sealant, membrane clad metal, pre-molded flashings, non-reinforced membrane, and termination bar shall be supplied by membrane manufacturer. Any components not manufactured and packaged by the membrane manufacturer shall be identified in writing by the membrane manufacturer.

2.1.3 Securement - Adhesive shall be as specified by the membrane manufacturer.

PART 3 EXECUTION

3.1 Inspection

3.1.1 Verify surface of substrate is smooth, clean, rigid and free from debris, projections, holes, etc. which may adversely affect the membrane application.

3.1.2 Clean all exposed metal surfaces such as pipes, pipe sleeves, drains, duct work, etc., by removing loose paint, rust and any asphalt or coal tar pitch.

3.2 Installation

3.2.1 General

- 3.2.1.1 The Contractor shall strictly adhere to the applicable manufacturer's published specifications for installation unless otherwise specified. Instructions and procedures described herein are to be considered minimum requirements for application of materials.
- 3.2.1.2 The contractor shall be responsible for coordinating the work to ensure that the new roofing system remains watertight at the end of each working day. The contractor shall be responsible for any interior damages resulting from water that enters the building by way of defects in or damage to the new roof system or due to incomplete construction of the new system.
- 3.2.1.3 Upon completion a quality assurance inspection of the roof system shall be performed by the membrane manufacturer for acceptance and issuance of the warranty. The contractor shall arrange for this inspection such that the Owner's representative may attend. Also, the contractor shall arrange for the manufacturer's representative to provide a copy of the written warranty inspection report immediately upon completion of the warranty inspection.

3.2.2 Membrane installation:

- 3.2.2.1 Clean the entire work area with a power leaf blower to assure that the substrate is free of all insulation particles, dust, tear off residue and other undesirable materials.
- 3.2.2.2 Position the membrane and secure per the membrane manufacturer's requirements.
- 3.2.2.3 Hot air welding
- A. All field seams exceeding 10 feet in length shall be welded with an automatic welder.
 - B. All seams must be clean and dry prior to initiating field welding. Do not use denim or synthetic rags for cleaning; use clean cotton rags only with an approved cleaning agent.
 - C. Use a dedicated, portable generator to ensure a consistent

electrical supply, without fluctuations that can interfere with weld consistency.

- D. Properly welded seams shall create a homogeneous weld a minimum of 1½ " wide.

3.2.2.4 All seams shall be probed daily and any deficiencies repaired that same day.

3.2.3 Flashing

3.2.3.1 Flashing materials shall be fully adhered to properly prepared and approved substrate using the manufacturer's adhesive or mastic. Flashing materials shall conform tightly to vertical and inclined surfaces. Bridging, sagging, or air pockets will not be accepted.

3.2.3.2 The flashing material shall lap over the reinforced membrane a minimum of four inches beyond the edge of the reinforced membrane or four inches beyond any fasteners.

3.2.3.3 Extend flashing a minimum of 8 inches above the finished roof level in accordance with detail drawings.

3.2.3.4 Laps in the flashing materials shall be a minimum width of 1½ " and be fully heat welded.

3.2.3.5 Complete all inside and outside corner flashing details with pre-formed corners or an approved field fabrication detail.

3.2.3.6 Probe all laps daily and repair as required.

3.2.4 Construct a watertight seal at the end of each working day, regardless of the weather forecast. The portion of the membrane contaminated with sealant material shall be cut off prior to the resumption of work.

END OF SECTION

SECTION 07560 FLUID APPLIED COATING

PART 1 GENERAL

1.1 Work Included - Installation of coating at pipe vents situated on sheet metal boxes.

1.2 Submittals - Submittals shall be in accordance with Section 01300 of this specification.

1.3 Quality Assurance

1.3.1 Standards: Comply with standards specified in this section and as listed in the General Requirements.

1.3.2 Qualifications of Manufacturer

1.3.2.1 Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacturer of similar items and with a history of successful production acceptable to the Owner.

1.3.2.2 Products used in the work included in this section shall meet all properties specified in ASTM D6083 and shall be verified by an independent testing agency.

1.3.2.3 Products used in the work included in this section shall have a Class A fire rating when tested in accordance with ASTM E108 and shall be verified by an independent testing agency.

1.3.3 Qualifications of Installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section. As a minimum, the roofing foreman and the membrane applicator shall be certified and trained by membrane manufacturer and shall be experienced in the application of the specified membrane system, and shall be on site at all times. Written certification must be provided.

1.4 Environmental Conditions:

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

1.4.2 Do not apply materials when there is a risk that they will be exposed to temperatures of 40° F. or less during the first 24 hours after application.

- 1.4.3 Do not apply materials when there is a risk that they will be exposed to rain or heavy dew prior to curing.

1.5 Warranty - Warranties shall be in accordance with Section 01750 of this specification.

PART 2 PRODUCTS

2.1 Coating shall be one of the following or an approved equal:

- 2.1.1 ALDOCOAT 384, by ALDO Products Company, Inc., 1604 N. Main St., Kannapolis, NC 28081, 800-474-6019.

- 2.1.1.1 Base Coat - ALDOCOAT 384 Polyurethane Aluminum

- 2.1.1.2 Metal Primer - ALDOPRIME 710 Rust Inhibitor

- 2.1.1.3 Polyester Mat - ALDOFABRIC 272

- 2.1.1.4 Final Coat - ALDOCOAT 384 Polyurethane Aluminum

- 2.1.2 Hydro-Stop, by Hydro-Stop, Inc., 2635 Rourk Street, Charleston, SC 29405, 800-739-5566.

- 2.1.2.1 Base Coat - Unisil Elastomeric Coating

- 2.1.2.2 Metal Primer - StableRust Primer

- 2.1.2.3 Polyester Mat - PremiumCoat Fabric

- 2.1.2.4 Final Coat - Unisil Elastomeric Coating

- 2.1.3 Erathane 300, by Elastomeric Roofing Systems, Inc., 6900 Bleck Dr., Rockford, MN 55373, 800-403-7747.

- 2.1.3.1 Base Coat - Erathane 300

- 2.1.3.2 Metal Primer - Polyurethane Primer

- 2.1.3.3 HER Polyurethane Roof Sealant (at joints in the sheet metal)

- 2.1.3.4 Final Coat - Erathane 300

2.2 Color of finish coat to be white.

PART 3 EXECUTION

3.1 Surface preparation: Clean area thoroughly using SSPC hand tool cleaner.

3.2 Application of coating system.

- 3.2.1 Apply metal primer over all surfaces to be coated in accordance with manufacturer's printed instructions.
- 3.2.2 Coating shall be applied to minimum height of 4" on round pipes and cover the horizontal surface of sheet metal base.
- 3.2.3 Polyester mat:
 - 3.2.3.1 Install at locations as required by the manufacturer.
 - 3.2.3.2 Construct all overlaps such that they are shingled to shed water.
 - 3.2.3.3 Cut and conform the polyester mat to the underlying surface to avoid bridging.
- 3.2.4 Apply the base coat as required by the manufacturer.
- 3.2.5 Apply additional thickness of coating at corners, intersections and angles.
- 3.2.6 Apply the final coat as required by the manufacturer.
- 3.2.7 The minimum dry film thickness for the finished coating system shall not be less than 25 mils.
- 3.2.8 Protect finished work from weather or foot traffic until fully cured.

END OF SECTION

SECTION 07621 SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

- 1.1 Work Included - Installation of new sheet metal edging, counterflashings, gutters, scuppers, downspouts, conductor heads, and accessory materials.

- 1.2 Related Work:
 - 1.2.1 Selective Demolition - Section 02070
 - 1.2.2 Rough Carpentry - Section 06114
 - 1.2.3 Single Ply Sheet Roofing - Section 07531

- 1.3 Quality Assurance:
 - 1.3.1 Qualifications of the Manufacturer - Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Designer.
 - 1.3.2 Qualifications of the Installer - Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and are completely familiar with the specified requirements and the methods needed for the proper performance of the work in this section.
 - 1.3.3 All sheet metal installation shall be uniform with joints at corners and angles mitered and the different sections accurately fitted and rigidly secured. Exposed edges shall be returned (hemmed), both for strength and appearance, and sheet metal shall be fitted closely and neatly. The Contractor providing all necessary cleats or stiffeners and other reinforcements as required to make all sections rigid and substantial.
 - 1.3.4 Completed sheet metal work shall be aesthetically pleasing and professional in every aspect. Perform all necessary work to prepare the substrate to provide straight lines and true planes. All non-conforming work (oil-canning, dents, and stains) are unacceptable and shall be replaced at no cost to the Owner. All exposed edges shall be hemmed and all joints shall be neatly fitted. Concealed or unforeseen conditions shall be brought to the attention of the Designer prior to fabrication and installation.
 - 1.3.5 In acceptance or rejection of the work of this section, the Owner will make no allowance for lack of skill on the part of the workmen.

1.4 Submittals:

- 1.4.1 Submit shop drawings indicating material profile, jointing pattern, jointing details, fastening methods, and installation details.
- 1.4.2 Submit to Designer a 12-inch length of each sheet metal configuration prior to fabrication. The Contractor shall verify existing field conditions. Minor dimensional detail changes may be required to fit existing conditions.
- 1.4.3 Submit product data in accordance with section 01300.

1.5 Storage and Handling:

- 1.5.1 Store materials dry in accordance with Section 01600.
- 1.5.2 Stack material to prevent twisting, bending, or abrasion.
- 1.5.3 During storage prevent material contact with any substance that would discolor or stain, including soil and water.

1.6 Scheduling:

- 1.6.1 All new sheet metal work shall be closely coordinated with the installation of the new roof system.
- 1.6.2 New sheet metal shall be installed simultaneously with the roofing work such that roofing terminations will not be left unprotected and closures are properly installed at the locations noted.

PART 2 PRODUCTS

2.1 Sheet Metal:

- 2.1.1 Coping metal and counterflashing (non-membrane clad metal) - Shall be 24 gauge galvalume steel conforming to ASTM A-446 G-90; shall be prefinished with Knyar 500 Fluorocarbon coating with a top side total dry film thickness of 1.25 mil; bottom side shall be coated with a primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesion, flexibility, fading, chalking, and longevity. Color shall be standard color selected by Owner.
- 2.1.2 Membrane clad metal - shall be as supplied by the Single Ply Membrane Manufacturer (see Specification Section 07531). Fabricate and install in accordance with this specification.
- 2.1.3 Continuous cleats - Shall be 22 gauge galvalume.

2.1.4 Gutters:

2.1.4.1 Size - As detailed on the drawings.

2.1.4.2 Material - see paragraph 2.1.1 above.

2.1.4.3 Fasteners shall be of stainless steel, and of a type, size and spacing as specified by gutter manufacturer.

2.1.4.4 Gutter brackets - Shall be 1/8" thick x 1.25" wide aluminum or stainless steel.

2.1.5 Downspouts:

2.1.5.1 Size - 3" x 4" plain rectangular.

2.1.5.2 Material - see paragraph 2.1.1 above.

2.1.5.3 Downspout straps: Shall be formed from a 2" wide strip of sheet metal of a length required to suit the specified hanger design. Connect to masonry at 36" o.c. maximum.

2.1.6 Continuous cleats - Shall be 22 gauge galvalume steel.

2.1.7 Soldered corner fabrications - Shall be 0.018", 26 gauge, ASTM Type 304, stainless steel.

2.2 Accessory Materials:

2.2.1 Termination Bar - Shall be 1/8 inch x 1 inch 316 aluminum flat bar, hot rolled annealed, pickled and conforming to requirements of ASTM-A276. Pre-drill holes for fasteners 12 inches o.c. Holes shall be slotted.

2.2.2 Sealant Tape - Shall be per the manufacturer's requirements or as a minimum 3/16" thick X 1" wide.

2.2.3 Fasteners:

2.2.3.1 Nails - Shall be stainless steel, length to suit.

2.2.3.2 Screws - Shall be stainless steel, self-drilling, self-tapping No. 12 screws, pan head minimum 1 inch long, with neoprene washers.

2.2.3.3 Masonry Anchors for securing termination bar or counterflashing - Shall be 1/4 inch by 1 inch expanding anchor-type, equal to Rawl Zamac Nailin fastener No. 2870 having stainless steel nail.

2.2.3.4 Pop Rivets - Use 1/8" diameter stainless steel pop rivets color to

match adjoining metal.

2.2.4 Silicone Sealant

2.2.4.1 Composition: Sealant shall be low modulus, neutral-curing one component silicone, with a movement capability of +/- 50%.

2.2.4.2 Material shall be of gun grade consistency, shall be easily workable and shall be capable of producing a smooth, attractive sealant bead.

2.2.4.3 Colors shall be selected by the Owner from the manufacturer's standard and custom color charts. Submit samples for the Owner's selection and approval.

2.2.4.4 The following manufacturers and their products listed are approved for use on this project:

- A. Pecora Corporation: 890 Architectural Silicone Sealant
- B. Dow Corning 790 Silicone Building Sealant
- C. GE Silicones SilPruf LM SCS2700

PART 3 EXECUTION

3.1 Inspection:

3.1.1 Inspect nailer areas to verify clean, smooth, free of depressions, waves, or projections and solidly supported joints.

3.1.2 Verify roof openings, pipes, sleeves or vents through roof are solidly set.

3.1.3 Verify compatibility of flashing system with other system materials.

3.1.4 Verify installation of all appropriate base flashings prior to installation of sheet metal.

3.2 Fabrication:

3.2.1 Fabrication shall be in accordance with the standards and details in the Architectural Sheet Metal Manual, published by the Sheet Metal and Air Conditioning Contractors National Association, Inc.

3.2.2 Fabricate and install sheet metal sections in minimum 10-foot lengths except where shorter lengths are required by construction.

- 3.2.3 Form sections square, true, and accurate to size, free from distortion, sharp edges, and other defects detrimental to appearance or performance.
 - 3.2.4 Junctures, intersections, corners and unions of sheet metal shall be held to 18-inch legs or less.
 - 3.2.5 At all locations where new sheet sections terminate, the sheet metal flashings shall terminate with end sections of one-piece construction to provide watertight seams. Provide shop drawings for all conditions. Seams shall be soldered.
 - 3.2.6 Sheet metal flashing shall be fabricated and installed to allow for expansion and contraction of the component materials without buckling, hole elongation, fastener failure or excess stress loading situations developing at any time during the temperature cycle. Clips shall be designed and installed to resist rotation and to avoid shear stress when roofing material expands and contracts.
- 3.3 General Installation:
- 3.3.1 Installation shall be in accordance with the standards and details in the Architectural Sheet Metal Manual, published by the Sheet Metal and Air Conditioning Contractors National Association, Inc.
 - 3.3.2 All exposed edges of sheet metal shall be folded back, or hemmed, onto concealed surfaces.
 - 3.3.3 All counterflashing shall be secured with gasketed, screw type fasteners spaced not more than 12" c-c and not less than two fasteners on any side as shown in the drawings.
- 3.4 Gutters:
- 3.4.1 Fabricate and install downspout outlets prior to setting in place.
 - 3.4.2 Construct end conditions for expansion joint.
 - 3.4.3 Set gutter in place and install gutter bars at 3'-0" on center.
 - 3.4.4 Conform to profile shown on the drawings.
 - 3.4.5 Caulk and seal all joints.
 - 3.4.6 Construct end conditions so that rain does not enter behind end of gutter

3.5 Downspouts:

- 3.5.1 Provide mitered bends with soldered joints (soldered joints at copper only), or lapped and pop riveted (lapped and pop riveted all other materials).
- 3.5.2 Install at locations of existing. Align downspouts to avoid windows, doors, and vents.
- 3.5.3 Fit downspouts with a 90° elbow and align to drain to grade.
- 3.5.4 Downspout hangers shall be spaced hangers a maximum of 10 ft. Place a hanger immediately below the lower bend in the mitered bend. Install one hanger 2' above outlet.

3.6 Sealant Application:

- 3.6.1.1 It shall be the responsibility of the applicator to install the sealant in accordance with the contract documents and in a manner that ensures optimum performance of the materials used.
- 3.6.1.2 All sealing shall be done when surface temperatures are above 40 degrees F. Do not apply sealant if precipitation is forecast in the next 24 hours after application. All surfaces receiving caulking or sealing material shall be dry and clean.
- 3.6.1.3 Masking - Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be objectionable.
- 3.6.1.4 Sealant shall be applied in a continuous operation using a professional cartridge-type caulking gun or bulk-loading gun. Guns shall have nozzle of proper size and shall provide sufficient pressure to completely fill joints as designed.
- 3.6.1.5 Tool all sealant into place.
- 3.6.1.6 There shall be no air voids throughout the entire joint cross section. To ensure complete joint fill, tooling shall be performed within ten(10) minutes of sealant application.
- 3.6.1.7 At corner and butt/splice conditions for metal to metal joints, apply bond breaker tape prior to sealant application.

END OF SECTION

SECTION 07920

SEALANTS AND CAULKING

1 GENERAL

1.1 The contractor shall furnish and/or install all supervision, labor, materials, equipment, services and incidentals to complete all sealant and caulking work as shown on the drawings and/or as herein specified.

1.1.1 All work under this section shall be completed in accordance with the manufacturer's printed instructions.

1.2 Work Included - Replacement of sealant joints in precast and brick walls

1.3 Unusual Situations Or Job Conditions - The contractor, in order to properly prepare his bid, shall fully inspect the areas of work. If any unusual situations or additional faults, not covered by the bid documents are discovered, the contractor shall report such discoveries to the Designer prior to submitting the bid.

1.4 Protection

1.4.1 Areas adjacent to the work, including but not limited to glass, landscaping and irrigation systems, shall be fully protected from damage at all times. Any damages related to the performance of this work shall be repaired by the contractor at no cost to the owner.

1.4.2 The building shall be so protected as to prevent any dust, grit, or debris, caused by work under this contract from entering the building. Should any dust, grit, or debris enter the building, it shall be immediately cleaned out by the contractor to the satisfaction of the Designer and Owner.

1.5 Quality Assurance:

1.5.1 Qualifications of Manufacturer: Products used in this work shall be produced by Manufacturers regularly engaged in the manufacture of similar products and with a history of successful production acceptable to the Designer.

1.5.2 In acceptance or rejection of the work of this section, the Owner will make no allowance for lack of skill on the part of the workmen. All sealant mechanics shall be fully experienced in their trade. Great care shall be taken to ensure that the sealant is not introduced to adjacent surfaces, and if such surfaces are inadvertently contaminated, material shall be removed immediately.

1.5.3 All surfaces to be sealed shall be properly prepared as hereinafter specified.

1.5.4 Any damage of any type caused by the contractor's execution of the work

or any other action by the Contractor shall be repaired by the Contractor at his expense.

1.6 Warranty: Shall be in accordance with Section 01750

1.7 Product Handling

1.7.1 Materials shall be delivered in their original, tightly sealed containers or unopened packages, all clearly labeled with the manufacturer's name, product name and lot numbers, where applicable.

1.7.2 Prior to use, unopened containers shall be protected from heat and direct sunshine. In cool or cold weather, store containers where temperatures are approximately 75 degrees F. For at least sixteen (16) hours before using. Do not open containers until necessary preparatory work has been completed. If a particular manufacturer whose products are approved for use on this project has different temperature requirements than those specified above, such requirements shall be followed.

1.7.3 Do not retain on the job site any material which has exceeded the shelf life recommended by it's manufacturer.

1.8 Job Conditions - Do not apply caulking or sealants when the surface temperature is below 40 degrees Fahrenheit or above 125 degrees Fahrenheit. Do not apply materials when surface is damp or during cold, rainy, or frosty weather.

2 PRODUCTS

2.1 Silicone Sealant

2.1.1 Material Description

2.1.1.1 Composition: Sealant shall be low modulus, neutral-curing one component silicone, with a movement capability of +/- 50%.

2.1.1.2 Material shall be of gun grade consistency, shall be easily workable and shall be capable of producing a smooth, attractive sealant bead.

2.1.1.3 Color shall be by Dow Corning or approved equal. Submit samples for the Owner's selection and approval.

2.1.2 The following manufacturers and their products listed are approved for use on this project:

2.1.2.1 Pecora Corporation: 864 Architectural Silicone Sealant

2.1.2.2 Dow Corning: 790 Silicone Building Sealant

2.2 Bond Breaker Material

2.2.1 Backer rod shall be an open cell polyethylene backer. Size shall be approximately 25% larger than the width of the joint to which it is to be installed.

2.2.2 In joints where depth or joint configuration is not adequate to accept a backer rod, a polyethylene bond breaker tape with adhesive backing shall be installed.

2.3 Cleaner: Xylol, Toluene, or commercial solvent recommended by the sealant manufacturer.

2.4 Primer

2.4.1 Pecora P-64

2.4.2 Dow Corning 1200 Prime Coat

2.5 Other Materials

All other materials not specifically described but required for complete and proper caulking and installation of sealants shall be first quality of their respective kinds, new, and as selected and furnished by the caulking manufacturer, subject to the approval of the Designer.

3 EXECUTION

3.1 Scope includes all vertical sealant joints at precast wall panels, and all expansion joints in brick masonry walls.

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

3.3 Construct joints as recommended in writing by the sealant manufacturer and as shown on the details bound with this specification booklet.

3.4 Joint Preparation

3.4.1 Grinding is required.

3.4.2 Extent of grinding: At surfaces specified to be ground, abrade the surface to remove all laitance, surface dirt, concrete form release agents, water repellants, surface treatments, protective coatings, old sealant or other substance which may affect sealant adhesion.

3.4.3 Blow dust, loose particles and other debris with oil-free compressed air. Make as many passes with cleaning tools and compressed air as required

to ensure that joints are clean and free of existing sealing materials and/or other dirt and debris.

- 3.4.4 Clean all joints of contaminants and impurities to the depth at which the new sealant and backer rod are to be installed. This may be accomplished by wire brushing (power or hand), solvent wipe, or a combination.
- 3.4.5 Metal surfaces should be cleaned with solvent.
- 3.4.6 Cleaning of all surfaces should be done on the same day on which the sealant is applied.
- 3.4.7 All masonry or concrete surfaces shall be primed with the specified primer. Metal and other substrates shall be primed as determined by field testing.
- 3.4.8 Refer to paragraph 3.6.3 for joint preparation at existing joints less than 1/4" wide.

3.5 Installation of Back-Up Material

Use only the back-up material recommended by the manufacturer of the sealant and approved by the Designer for the particular installation, compressing the back-up material 25 percent to 50 percent to secure a positive and secure fit. When using back-up of tube or rod stock, avoid lengthwise stretching of the material. Do not twist or braid hose, or rod back-up stock.

3.6 Installation of Bond Breaker Tape

At joints where rod type backer cannot be used, apply bond breaker tape with adhesive backing to the back of the joint to prevent three sided adhesion.

3.7 Joint Width and Sealant Depth

- 3.7.1 Joint depth shall never be greater than width.
- 3.7.2 The ratio of the width of the joint to depth of the sealant shall be, as close as possible, two to one (2:1) with no joint depth being less than one quarter (1/4) inch.

<u>Joint Width (Inches)</u>	<u>Sealant Depth at Midpoint (inches)</u>
1/4 to 1/2	1/4
1/2 to 3/4	1/4 to 3/8
3/4 to 1	3/8 to 1/2
1 to 2	1/2

- 3.7.3 At joints that are less than 1/4" wide, joint shall be sawn or ground with a 1/4" diamond tuck pointing blade to increase joint width to at least 1/4"

wide. Utilize equipment with a fence or other device to produce a straight cut joint. Depth of cutting shall be controlled so as not to damage any existing granite anchorage devices.

3.7.4 The sealant depth shall be controlled by the use of back-up materials to maintain the recommended depth.

3.7.5 Where depth of joint does not permit the use of back-up material, then a bond breaker tape must be installed to prevent three point bonding.

3.8 Sealant Application

3.8.1 It shall be the responsibility of the applicator to install the sealant in accord with the contract documents and in a manner that ensures optimum performance of the materials used.

3.8.2 All sealing shall be done when surface temperatures are above 40 degrees F. Do not apply sealant if precipitation is forecast in the next 24 hours after application. All surfaces receiving caulking or sealing material shall be dry and clean.

3.8.3 Masking: Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be objectionable.

3.8.4 Sealant shall be applied in a continuous operation using a professional cartridge-type caulking gun or bulk-loading gun. Guns shall have nozzle of proper size and shall provide sufficient pressure to completely fill joints as designed.

3.8.5 There shall be no air voids throughout the entire joint cross section. To ensure complete joint fill, tooling shall be performed within ten (10) minutes of sealant application.

3.8.6 At corner and butt/splice conditions for metal to metal joints, apply bond breaker tape prior to sealant application as illustrated in the standard details.

3.9 Tooling

3.9.1 Tool all sealants at all conditions with light pressure to spread the material against the back-up material and the joint surfaces. Use a tool that keeps the sealant within the joint and results in the sealant having a concave surface. The sealant shall be dry tooled unless the sealant manufacturer specifically approves otherwise. If the sealant manufacturer approves, the tool may be dampened with a sealant manufacturer approved reducer. Do not use water or soapy water on the tool and do not over tool.

3.9.2 Tool the sealant at window sills and other like places so that precipitation, cleaning solutions, etc. will not pond.

3.9.3 At butt/splice conditions for metal to metal joints, tool sealant to form a uniform, convex bead.

3.9.4 When masking materials are used, they shall be removed immediately after tooling the sealant.

3.10 Cleaning

3.10.1 Ensure that uncured sealants are not allowed to contact surfaces adjacent to the joints, or any other non-joint surfaces. If uncured sealants are introduced to prohibited areas, such sealants shall be removed as follows:

3.10.1.1 Non-porous Surfaces: Immediately remove all excess sealant adjacent to the joint and elsewhere by using xylol, toluol or methyl ethel ketone while sealant is still in uncured state.

3.10.1.2 Porous Surfaces: Allow sealant to develop initial cure, then remove by abrasion or other mechanical means. Exercise extreme care to maintain, undamaged, the original surface texture.

3.10.1.3 Equipment and Tools: Equipment and tools may be cleaned with solvents such as xylol, toluol or methyl ethel ketone while sealant is uncured.

3.10.2 Observe proper precautions when using flammable solvents.

3.11 Quality Control

3.11.1 The following tests shall be performed as a part of the work to verify the material, as installed, will perform as intended.

3.11.1.1 Skin-Over Time/Elastomeric Test - this test should be performed once per week and on every new lot of sealant used.

A. Spread a 0.04" film of sealant on a sheet of polyethylene or wax paper.

B. Every few minutes, touch the sealant film lightly with a tool.

C. When the sealant does not adhere to the tool, the sealant has skinned over. Note the time required to reach this point. If a skin has not formed in three hours, do not use this material and notify the Designer.

- D. Allow the sealant to cure for 24 hours. After 24 hours, peel the sealant away from the polyethylene sheet. Stretch the sealant slowly to see that it has cured. If the sealant has not cured, contact the Designer.
- E. Record the results in the Product Quality Control Log book. This testing must be completed and results recorded, retained and available for review upon request. A sample form is found at the end of this section.

1.1.1.2 Standard Field Adhesion Test - this test should be performed at the job site after the sealant is fully cured (typically 7-21 days). Five tests shall be required for the first 1000 LF of caulking and one test per 1000 LF thereafter or one test per floor per elevation.

- A. Make a knife cut horizontally from one side of the joint to the other.
- B. Make two vertical cuts (from the horizontal cut) approximately 3" long, at both sides of the joint.
- C. Place a mark on the sealant tab 1" from the end of the vertical cuts.
- D. Grasp a 2" piece of the sealant firmly just beyond the 1" mark and pull at a 90 degree angle.
- E. If dissimilar substrates are being sealed, check the adhesion of the sealant to each substrate separately. This is accomplished by extending the vertical cut along one side of the joint, checking adhesion to the opposite side, and then repeating for the other surface.
- F. The sample shall be considered to pass if the sealant can be pulled 3" (300 % extension) without bond loss. If the sample does not pass, contact the designer.
- G. Inspect the joint for complete fill. The joint should not have voids and joint dimensions should match those defined in paragraph 3.4.2.
- H. Record the test results in the Field Adhesion Test Log. This testing must be completed and results

recorded, retained and available for review upon request. A sample form is found at the end of this section.

- 1.1.2 Upon request from Designer and at no additional cost, Contractor shall provide safe access to Designer for purposes of witnessing field testing.

Product Quality Control Log -- One-Part Silicone Sealants

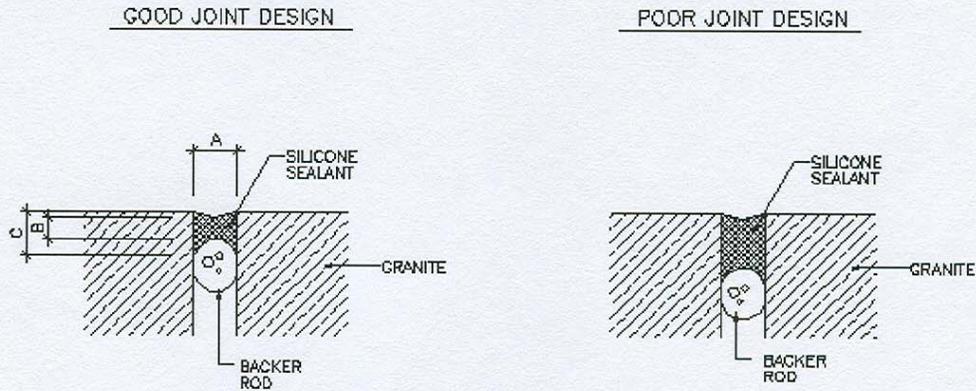
Project							
Location/Elevation/Unit ID							
Sealant Color							
Date	Time	Tester Initials	Sealant Lot Number Color	Tack-Free Time (Minutes)	Cured After 24 Hours (Y/N)	Elastomeric (Y/N)	

Field/Shop Adhesion Testing Log

Project									
Sealant									
Sealant Lot #/Color									
Primer (if applicable)									
Date Applied	Applied by (initials)	Test Date	Test Location (Elevation, Unit Number, etc.)	Primed (Y/N) Primer Lot #	Sealant Color and Lot #	Acceptable Joint Fill (Y/N)	Acceptable Adhesion (Y/N) and %Elongation	Comments	Tester Initials

Conventional Moving Weatherseal

CONVENTIONAL MOVING WEATHERSEAL



Good Joint Design

Key Points:

1. Dimension A must be at least 1/4" (6 mm).
2. Dimension B must be at least 1/8" (3 mm).
3. Dimension C must be at least 1/4" (6 mm).
4. Ratio of A:B should be 2:1 minimum.
5. Joint surface tooled.
6. Dimension B suggested Maximum = 1/2" (12.7 mm).
7. Dimension A Maximum = 4" (100 mm). Joints wider than 2" (50 mm) may slump slightly; therefore double application techniques of the sealant may be required.

Poor Joint Design

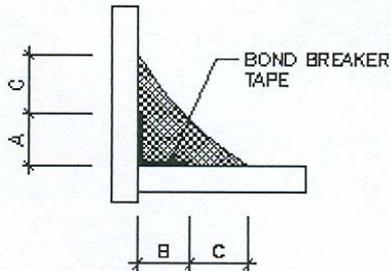
Concerns:

1. A deep sealant joint will not have the same movement capability as a properly designed joint.
2. Slow cure due to excessive sealant depth.

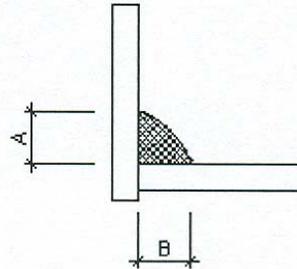
Moving Corner Joints

MOVING CORNER JOINT

GOOD JOINT DESIGN



POOR JOINT DESIGN



Good Joint Design

Key Points:

1. Dimension A and B must be at least 1/4" (6 mm).
2. A bond breaker tape or backer rod must be present if joint movement is anticipated.
3. Joint must be tooled flat or slightly concave.
4. Dimension C must be at least 1/4" (6 mm).

Poor Joint Design

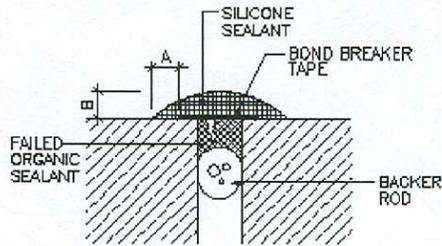
Concerns:

1. Dimension A or B less than 1/4" (6 mm).
2. Joint not properly tooled.
3. No bond breaker material; therefore the joint will not accept movement.

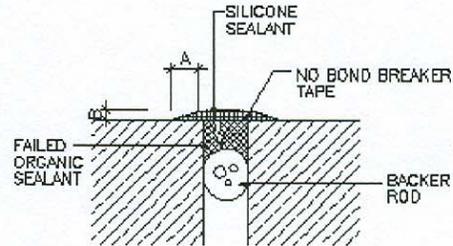
Remedial Joints

REMEDIAL JOINTS

GOOD JOINT DESIGN



POOR JOINT DESIGN



Good Joint Design

Key Points:

1. Dimension A must be at least 1/4" (6 mm).
2. Dimension B must be at least 1/8" (3 mm).
3. Bond breaker tape must be used to isolate fresh sealant from failed organic weatherseal and to allow joint movement.

Poor Joint Design

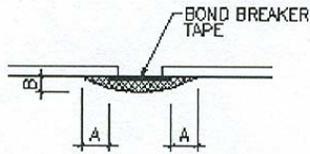
Concerns:

1. Dimension A less than 1/4" (6 mm) increases difficulty in obtaining adhesion and increases the likelihood for voids.
2. Dimension B less than 1/8" (3 mm) increases the likelihood of pinholes or voids in tooling; poor cohesive integrity.
3. No bond breaker material; therefore the joint will not accept movement.

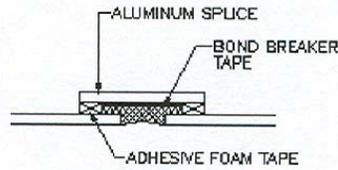
Splice Joints

SPLICE JOINT

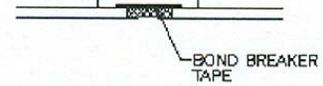
GOOD JOINT DESIGN



GOOD JOINT DESIGN



POOR JOINT DESIGN



Good Joint Design

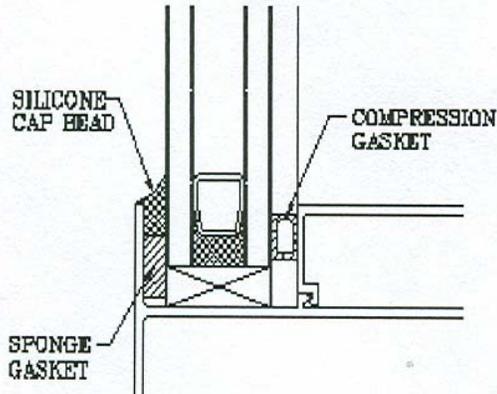
Key Points:

1. Joint is very difficult to clean.
2. Bond breaker hard to position/size correctly.
3. Movement during cure can cause joint failure.

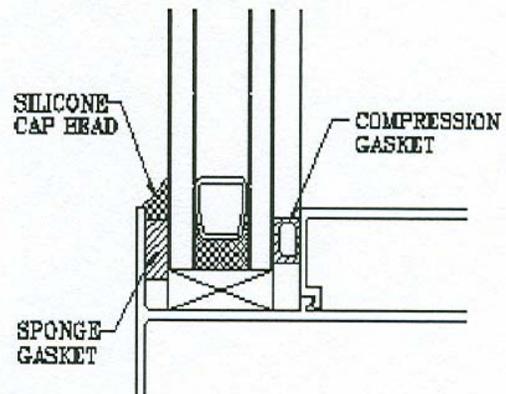
Cap Bead Glazing Joints

CAP BEAD GLAZING JOINT

GOOD JOINT DESIGN



POOR JOINT DESIGN



Good Joint Design

Key Points:

1. Adhesion contact on glass and metal is at least 1/4" (6 mm).
2. Silicone is compatible with gasket.
3. Dark-colored sealant masks possible discoloration from the gasket.

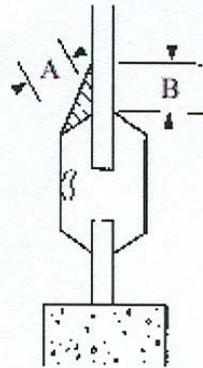
Poor Joint Design

Concerns:

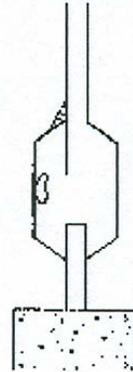
1. Inadequate contact between sealant and external metal.
2. Gray sealant is prone to discoloration.

Lock-Strip Wet Seal Joint

GOOD JOINT DESIGN



POOR JOINT DESIGN



Good Joint Design

Key Points:

1. Both dimensions A and B are 1/4" or greater.
2. DOW CORNING 791 or DOW CORNING 795 (dark color) Sealant is used with DOW CORNING® 1200 Prime Coat on glass and lock-strip gasket.

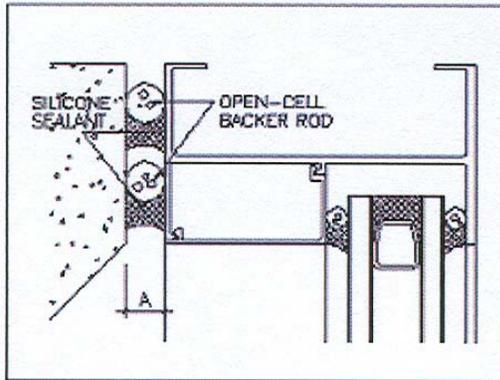
Poor Joint Design

Concerns:

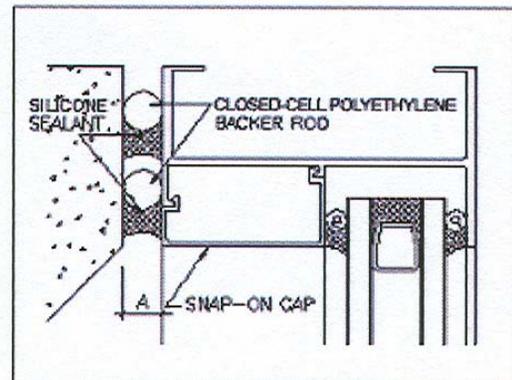
1. Insufficient sealant to accommodate movement.

Dual-Seal Moving Weatherseal

Good Joint Design



Poor Joint Design



Key Points :

1. Both weatherseals comply with the requirements for conventional moving weatherseals (addressed previously)
2. Open-cell backer rod is used to ensure full cure of the back weatherseal.
3. If closed-cell backer rod is used, the back weatherseal must be fully cured prior to the installation of the exterior seal.
4. Dimension A is at least 3/4" wide to assist application of the rear sealant joint.

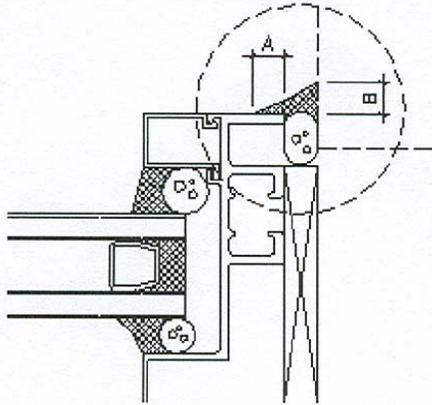
Concerns :

1. If both joints are sealed at or near the same time, the closed-cell backer rod will prevent moisture from reaching the rear sealant joint, and this seal will not cure.
2. Dimension A less than 3/4", making application of rear joint difficult
3. Exterior joint seal to aesthetic snap-on cap.

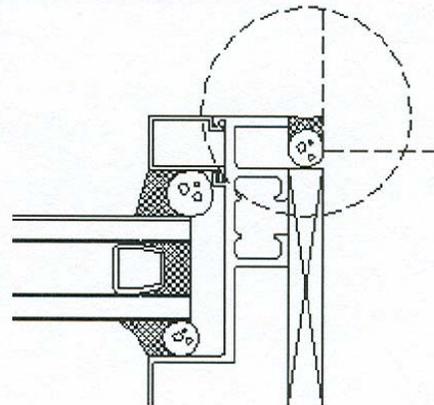
Window Perimeter Joints: Insufficient Aluminum Extrusion

WINDOW PERIMETER JOINT : INSUFFICIENT ALUMINUM EXTRUSION

GOOD JOINT DESIGN



POOR JOINT DESIGN



Good Joint Design

Key Points:

1. Dimensions A and B are each 1/4" (6 mm) or larger.

Poor Joint Design

Concerns:

1. Attempting to apply sealant onto the edge (or behind) thin gauge metal results in inadequate sealant/substrate contact and water leakage.

END OF SECTION

SECTION 08620 PLASTIC UNIT SKYLIGHTS

PART 1 GENERAL

- 1.1 Work Included - Installation of new curb mount unit plastic skylights and associated flashings.
- 1.2 Related Work Specified Elsewhere:
 - 1.2.1 Rough Carpentry -Section 06114
 - 1.2.2 Single Ply Sheet Roofing - Section 07531
- 1.3 Submittals - Submittals shall be in accordance with Section 01300 of this specification.
- 1.4 Quality Assurance: Comply with standards specified in this section and as listed in the General Requirements.
- 1.5 Performance Requirements:
 - 1.5.1 General: Provide unit skylights capable of withstanding loads indicated without failure. Failure includes the following:
 - 1.5.1.1 Thermal stresses transferred to the building structure.
 - 1.5.1.2 Framing members transferring stresses, including those caused by thermal and structural movement, to glazing.
 - 1.5.1.3 Noise or vibration created by thermal and structural movement and wind.
 - 1.5.1.4 Loosening or weakening of fasteners, attachments, and other components.
 - 1.5.1.5 Sealant failure.
- 1.6 Deliver, Storage, and Handling:
 - 1.6.1 Deliver products in manufacturer's original containers dry, undamaged, seals and labels intact.
 - 1.6.2 Store and protect products in accordance with manufacturer's recommendations.
- 1.7 Warranty:
 - 1.7.1 General: Warranties specified in this Section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.
 - 1.7.2 Skylight Warranty: Provide written warranty signed by manufacturer,

agreeing to repair or replace work that exhibits defects in materials or workmanship and guaranteeing weathertight and leak-free performance. "Defects" is defined as uncontrolled leakage of water and abnormal aging or deterioration. Warranty Period: 5 years from date of Substantial Completion.

- 1.7.3 Plastic Warranty: Provide written warranty signed by manufacturer agreeing to repair or replace work that has or develops defects in the plastic. "Defects" is defined as abnormal aging or deterioration.
- 1.7.4 Warranty Period for Acrylic: 5 years from date of Substantial Completion against yellowing.
- 1.7.5 Finish Warranty: Provide written warranty signed by manufacturer agreeing to repair or replace work with finish defects. "Defects" is defined as peeling, chipping, abnormal aging or deterioration, and failure to perform as required.

PART 2 PRODUCTS

2.1 Manufacturers:

- 2.1.1 Subject to compliance with requirements, provide products by the following manufacturers:
 - 2.1.1.1 Wasco Products, Inc.
 - 2.1.1.2 Velux America, Inc.
 - 2.1.1.3 Carlisle Syntec Sytems

2.2 Materials:

- 2.2.1 Extruded aluminum retaining angle. Extruded aluminum allow 6063-T5 with minimum effective thickness of 0.055 inch. Mitered and welded corner assembly in mill finish.
- 2.2.2 Extruded aluminum inner frame with integral condensation gutter. Extruded aluminum alloy 6063-T5 with minimum effective thickness of 0.055 inch unless noted. Mitered and welded corner assembly in mill finish.
- 2.2.3 Double-sided very high bond adhesive closed cell foam tape glazing seal.
- 2.2.4 Plastic Sheets: Monolithic, formable, transparent (colorless or bronze tinted) or translucent (white) sheets with good weather and impact resistance. Glazing seal with back beaded dow silicone.
 - 2.2.4.1 Acrylic inner and outer dome
 - 2.2.4.2 ASTM D-1003 light transmittance of 91% for clear acrylic
 - 2.2.4.3 ASTM D-542: reflective index of 1.49
 - 2.2.4.4 ASTM D-638: Tensile strength – rupture 10.2K PSI / Elasticity 450K PSI
 - 2.2.4.5 ASTM D-790: Flexural strength: -Rupture 15K PSI / Elasticity 450K PSI
 - 2.2.4.6 Thermo-formable. Type UVA (formulated with ultraviolet absorber)
- 2.2.5 Fasteners: 8x1 stainless steel – hex washer head, provided by installer.

Skylight assembly fasteners zinc electroplated.

2.2.6 Unit Components:

- 2.2.6.1 General: Factory-assembled, curb-mounted unit consisting of plastic glazing welded in place by a 6063-T5 extruded aluminum retaining angle and resting on an extruded aluminum inner frame
- 2.2.6.2 Curb: Fabricated on site.
- 2.2.6.3 Condensation Control: Fabricate skylight units with integral internal gutters and nonclogging weeps to collect and dispose of condensation (optional unless noted).
- 2.2.6.4 Size: To match existing deck openings of 24" x 48"
- 2.2.6.5 Glazing:
 - A. Interior: Thermoformed acrylic.
 - B. Exterior: Thermoformed acrylic or polycarbonate.

2.3 FABRICATION:

2.3.1 Framing Components: As follows:

- 2.3.1.1 Factory fit and assembled components.
- 2.3.1.2 Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.
- 2.3.1.3 Fabricate components to drain water passing joints and to drain condensation and moisture occurring or migrating within skylight system to the exterior.
- 2.3.1.4 Fabricate components to accommodate expansion, contraction, and field adjustment, and to provide for minimum clearance and shimming at skylight perimeter.
- 2.3.1.5 Fabricate components to ensure that glazing is thermally and physically isolated from framing members.
- 2.3.1.6 Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
- 2.3.1.7 Fit and secure joints by heliarc welding.
- 2.3.1.8 Mill Finish: Manufacturer's standard satin mill finish.

PART 3 EXECUTION

3.1 Examination:

- 3.1.1 Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting skylight performance.
- 3.1.2 Proceed with installation only after unsatisfactory conditions have been corrected.
- 3.1.3 Preparation:
 - 3.1.3.1 Metal Protection: As follows:

- A. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
- B. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Where aluminum will contact pressure-treated wood, separate dissimilar materials by methods recommended by manufacturer.

3.2 Installation:

- 3.2.1 General: Comply with manufacturer's written instructions for protecting, handling, and installing skylight components.
- 3.2.2 Coordinate with installation of roof deck and other substrates to receive skylight units.
- 3.2.3 Coordinate with installation of vapor barriers, roof insulation, roofing, and flashing as required to assure that each element of the work performs properly and that combined elements are waterproof and weathertight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.
- 3.2.4 Counter Flashing: Where counter flashing is required as component of the skylight, install to provide an adequate waterproof overlap with roofing or roof flashing (as counterflashing). Seal with thick bead of mastic sealant, except where overlap is indicated to be left open for ventilation.

3.3 Cleaning and protection:

- 3.3.1 Clean exposed metal and plastic surfaces according to manufacturer's instructions. Touch up damaged metal coatings.
- 3.3.2 Clean and polish plastic skylight units, inside and out, not more than 5 days prior to date of substantial completion.

END OF SECTION

**2012 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)**

Name of Project: Roof Replacement at the NCDOT Traffic Services Office SCO ID# 14-11317-01A GL: 52199012
 Cost Center: 150538

Building, Address: Traffic Services Office Zip Code 28301

Proposed Use: Office

Owner/Authorized Agent: Priscilla Williams Phone # (919) 715 - 0402 E-Mail ptwilliams1@ncdot.gov

Owned By: City/County Private State

Code Enforcement Jurisdiction: City _____ County _____ State

LEAD DESIGN PROFESSIONAL: _____

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	_____	_____	_____	(____)_____	_____
Civil	_____	_____	_____	(____)_____	_____
Electrical	_____	_____	_____	(____)_____	_____
Fire Alarm	_____	_____	_____	(____)_____	_____
Plumbing	_____	_____	_____	(____)_____	_____
Mechanical	_____	_____	_____	(____)_____	_____
Sprinkler-Standpipe	_____	_____	_____	(____)_____	_____
Structural	_____	_____	_____	(____)_____	_____
Retaining Walls >5' High	_____	_____	_____	(____)_____	_____
Other (Reroofing) Rooftop Systems Engrs.	_____	John Willers	11102	(919) 872-7866	john@rse-pc.com

2012 EDITION OF NC CODE FOR: New Construction Addition Upfit
EXISTING: Reconstruction Alteration Repair Renovation
CONSTRUCTED: (date) unknown **ORIGINAL USE(S)** (Ch. 3): X
RENOVATED: (date) _____ **CURRENT USE(S)** (Ch. 3): _____
PROPOSED USE(S) (Ch. 3): _____

BASIC BUILDING DATA

Construction Type: I-A II-A III-A IV V-A
 (check all that apply) I-B II-B III-B V-B
Sprinklers: No Partial Yes NFPA 13 NFPA 13R NFPA 13D
Standpipes: No Yes Class I II III Wet Dry
Fire District: No Yes (Primary) **Flood Hazard Area:** No Yes
Building Height: (feet) 18

Gross Building Area:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	RENO/ALTER (SQ.FT)	SUB-TOTAL
6 th Floor	N/A			
5 th Floor	N/A			
4 th Floor	N/A			
3 rd Floor	N/A			
2 nd Floor	N/A			
Mezzanine	N/A			
1 st Floor	29,394			
Basement	N/A			
TOTAL	29,394			

ALLOWABLE AREA

Occupancy:

- Assembly A-1 A-2 A-3 A-4 A-5
- Business
- Educational
- Factory F-1 Moderate F-2 Low
- Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM
- Institutional I-1 I-2 I-3 I-4
 I-3 Condition 1 2 3 4 5
- Mercantile
- Residential R-1 R-2 R-3 R-4
- Storage S-1 Moderate S-2 Low High-piled
 Parking Garage Open Enclosed Repair Garage
- Utility and Miscellaneous

Accessory Occupancies:

- Assembly A-1 A-2 A-3 A-4 A-5
- Business
- Educational
- Factory F-1 Moderate F-2 Low
- Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM
- Institutional I-1 I-2 I-3 I-4
 I-3 Condition 1 2 3 4 5
- Mercantile
- Residential R-1 R-2 R-3 R-4
- Storage S-1 Moderate S-2 Low High-piled
 Parking Garage Open Enclosed Repair Garage
- Utility and Miscellaneous

Incidental Uses (Table 508.2.5):

- Furnace room where any piece of equipment is over 400,000 Btu per hour input
- Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
- Refrigerant machine room
- Hydrogen cutoff rooms, not classified as Group H
- Incinerator rooms
- Paint shops, not classified as Group H, located in occupancies other than Group F
- Laboratories and vocational shops, not classified as Group H. located in a Group E or I-2 occupancy
- Laundry rooms over 100 square feet
- Group I-3 cells equipped with padded surfaces
- Group I-2 waste and linen collection rooms
- Waste and linen collection rooms over 100 square feet
- Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
- Rooms containing fire pumps
- Group I-2 storage rooms over 100 square feet
- Group I-2 commercial kitchens
- Group I-2 laundries equal to or less than 100 square feet
- Group I-2 rooms or spaces that contain fuel-fired heating equipment

- Special Uses:** 402 403 404 405 406 407 408 409 410 411 412
 413 414 415 416 417 418 419 420 421 422 423 424
 425 426 427

- Special Provisions:** 509.2 509.3 509.4 509.5 509.6 509.7 509.8 509.9

Mixed Occupancy: No Yes Separation: 3 Hr. Exception: _____

Incidental Use Separation (508.2.5)

This separation is not exempt as a Non-Separated Use (see exceptions).

Non-Separated Use (508.3)

The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

Separated Use (508.4) - See below for area calculations

For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

$$\frac{5720}{26000} + \frac{16185}{37500} + \frac{2035}{25000} = .73 \leq 1.00$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503 ⁵ AREA	(C) AREA FOR FRONTAGE INCREASE ¹	(D) AREA FOR SPRINKLER INCREASE ²	(E) ALLOWABLE AREA OR UNLIMITED ³	(F) MAXIMUM BUILDING AREA ⁴
1	Business	16185	37500	12375	N/A	38375	38375
1	Repair Garage	5720	26000	12375	N/A		
1	Storage	2035	25000	12375	N/A		

¹ Frontage area increases from Section 506.2 are computed thus:

- a. Perimeter which fronts a public way or open space having 20 feet minimum width = 955 (F)
- b. Total Building Perimeter = 955 (P)
- c. Ratio (F/P) = 1 (F/P)
- d. W = Minimum width of public way = 1 (W)
- e. Percent of frontage increase $I_f = 100 [F/P - 0.25] \times W/30 = \underline{49.5}$ (%)

² The sprinkler increase per Section 506.3 is as follows:

- a. Multi-story building $I_s = 200$ percent
- b. Single story building $I_s = 300$ percent

³ Unlimited area applicable under conditions of Section 507.

⁴ Maximum Building Area = total number of stories in the building x E (506.4).

⁵ The maximum area of open parking garages must comply with Table 406.3.5. The maximum area of air traffic control towers must comply with Table 412.1.2.

ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS	SHOWN ON PLANS	CODE REFERENCE
Type of Construction	Type <u>II-A</u>		Type _____	
Building Height in Feet	18	Feet = H + 20' = _____		
Building Height in Stories	1	Stories + 1 = _____		

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING		DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
		REQ'D	PROVIDED (w/_____*) REDUCTION)				
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Exterior							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions							
Exterior walls							
North							
East							
West							
South							
Interior walls and partitions							
Floor Construction Including supporting beams and joists							
Roof Construction Including supporting beams and joists	The building appears to be Type II-A construction. The interior construction remains unaltered. Since the building is Type II-A, the roof/ceiling assembly fire rating is required to be 1 hour and is obtained from the precast concrete double T roof construction. There are no P #'s from UL for similar systems. The exterior fire rating of the specified roof system shall be Class A.						
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy Separation							
Party/Fire Wall Separation							
Smoke Barrier Separation							
Tenant Separation							
Incidental Use Separation							

* Indicate section number permitting reduction

I. The existing roof construction consists of:

- A. The roof deck consists of precast concrete double T's.
- B. The roof consists of an asphaltic vapor barrier, fiberglass board insulation, and built up roof membrane with embedded aggregate
- C. Drainage is accomplished by through-wall scuppers at areas B and C, and a gutter at area A.

II. The proposed construction will involve:

- A. Removing the existing roof systems down to the conc. deck.
- B. Adhering new tapered polyisocyanurate insulation with gypsum coverboard.
- C. Installing new fully adhered single ply membrane.
- D. Replacing any deteriorated wood blocking.
- E. Installing new wood blocking.
- F. Installing new sheet metal gutters, scuppers, downspouts, and counterflashings.
- G. Replacing skylights

The roof membrane systems will be either by Firestone, Carlisle, Versico, or approved equal. Their UL listings are:

R8103, Fully Adhered Membrane Roofing Systems, Class A, Paragraph 2A, Roof Covering Materials (TEVT), Carlisle Syntec

R9516, Fully Adhered Single-Ply System, Class A, Paragraph 2A, Roof Covering Materials (TEVT), Firestone Building Products Co. LLC

R9853, Fully Adhered Membrane Roofing Systems, Class A, Paragraph 2, Roof Covering Materials (TEVT), Versico, Inc.

These are listed under Roofing Systems (TEVT). This category covers material that would meet the Class A requirements specified for the subject project. These classifications are applicable for replacement, which is what is required for the subject project.

LIFE SAFETY SYSTEM REQUIREMENTS

- Emergency Lighting: No Yes
Exit Signs: No Yes
Fire Alarm: No Yes
Smoke Detection Systems: No Yes Partial _____
Panic Hardware: No Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: _____

- Fire and/or smoke rated wall locations (Chapter 7)
- Assumed and real property line locations
- Exterior wall opening area with respect to distance to assumed property lines (705.8)
- Existing structures within 30' of the proposed building
- Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
- Occupant loads for each area
- Exit access travel distances (1016)
- Common path of travel distances (1014.3 & 1028.8)
- Dead end lengths (1018.4)
- Clear exit widths for each exit door

- Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
- Actual occupant load for each exit door
- A separate reduced scaled plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation and supporting construction for a fire barrier/fire partition/smoke barrier. (707.5.1, 709.4 & 710.4).
- Location of doors with panic hardware (1008.1.10)
- Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
- Location of doors with electromagnetic egress locks (1008.1.9.8)
- Location of doors equipped with hold-open devices
- Location of emergency escape windows (1029)
- The square footage of each fire area (902)
- The square footage of each smoke compartment (407.4)
- Note any code exceptions or table notes that may have been utilized regarding the items above

Section/Table/Note	Title

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH		
				132" ACCESS AISLE	8' ACCESS AISLE	
TOTAL						

STRUCTURAL DESIGN

DESIGN LOADS:

Importance Factors: Wind (I_w) 1
 Snow (I_s)
 Seismic (I_E)

Live Loads: Roof 20 psf
 Mezzanine psf
 Floor psf

Ground Snow Load: psf

Wind Load: Basic Wind Speed 100 mph (ASCE-7-05)
 Exposure Category B

Wind Base Shears (for MWFRS)

V_x = _____ V_y = _____

SEISMIC DESIGN CATEGORY: A B C D

Provide the following Seismic Design Parameters:

Occupancy Category (Table 1604.5) I II III IV

Spectral Response Acceleration S_s _____ %g S₁ _____ %g

Site Classification (Table 1613.5.2) A B C D E F

Data Source: Field Test Presumptive Historical Data

Basic structural system (check one)

- Bearing Wall Dual w/Special Moment Frame
- Building Frame Dual w/Intermediate R/C or Special Steel
- Moment Frame Inverted Pendulum

Seismic base shear: V_x = _____ V_y = _____

Analysis Procedure: Simplified Equivalent Lateral Force Dynamic

Architectural, Mechanical, Components anchored? Yes No

LATERAL DESIGN CONTROL: Earthquake Wind

SOIL BEARING CAPACITIES:

Field Test (provide copy of test report) _____ psf

Presumptive Bearing capacity _____ psf

Pile size, type, and capacity _____

SPECIAL INSPECTIONS REQUIRED: Yes No

**PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)**

USE		WATERCLOSETS		URINALS	LAVATORIES		SHOWERS/ TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE		MALE	FEMALE		REGULAR	ACCESSIBLE
SPACE	EXISTING								
	NEW								
	REQUIRED								

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, SCO, DPI, DHHS, ICC, etc., describe below)

ENERGY SUMMARY

ENERGY REQUIREMENTS:

The following data shall be considered minimum and any special attribute required to meet the **North Carolina Energy Conservation Code** shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

2012 NC Administrative Code and Policies

Climate Zone: 3 4 5

Method of Compliance:

- Prescriptive (Energy Code)
- Performance (Energy Code)
- Prescriptive (ASHRAE 90.1)
- Performance (ASHRAE 90.1)

THERMAL ENVELOPE

Roof/ceiling Assembly (each assembly)

Description of assembly: Precast conc. Double T deck, polyisocyanurate insulation, gypsum coverboard, fully adhered TPO membrane.

U-Value of total assembly: _____
R-Value of insulation: R-30 (minimum)
Skylights in each assembly: _____
 U-Value of skylight: _____
Total square footage of skylights in each assembly: _____

Exterior Walls (each assembly)

Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Openings (windows or doors with glazing)
 U-Value of assembly: _____
 Solar heat gain coefficient: _____
 Projection factor: _____
 Door R-Values: _____

Walls below grade (each assembly)

Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors over unconditioned space (each assembly)

Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors slab on grade

Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Horizontal/vertical requirement: _____
Slab heated: _____

Section 502.4.3 Sealing of Building Envelope [Indicate where details are in the set]

- Joint around fenestration and door frames
- Junction between walls and foundations, walls at building corners, walls and structural floors or roofs, walls and roof or wall panels.
- Openings at penetrations of utility services through roofs, walls, and floors including but not limited to electrical, plumbing, mechanical, security and communications.
- Site-built fenestration and doors.
- Joints, seams and penetrations of air barrier system.
- Other openings in the building envelope.

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone

winter dry bulb: _____
summer dry bulb: _____

Interior design conditions

winter dry bulb: _____
summer dry bulb: _____
relative humidity: _____

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System

Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____

Boiler
Size category. If oversized, state reason.: _____

Chiller
Size category. If oversized, state reason.: _____

List equipment efficiencies: _____

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance:

Energy Code: Prescriptive Performance
ASHRAE 90.1: Prescriptive Performance

Lighting schedule (each fixture type)

lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Prescriptive Compliance

- 506.2.1 More Efficient Mechanical Equipment
- 506.2.2 Reduced Lighting Power Density
- 506.2.3 Energy Recovery Ventilation Systems

- 506.2.4 Higher Efficiency Service Water Heating
 - 506.2.5 On-Site Supply of Renewable Energy
 - 506.2.6 Automatic Daylighting Control Systems
-