

**INVITATION FOR BIDS**

**TO**

**COUNTY OF DURHAM**

**REPLACEMENT OF MAIN ROOF AND HVAC UNIT AT THE  
CRIMINAL JUSTICE RESOURCE CENTER**

**IFB No. 18-018**



**Bid Opening Date:**

**January 25, 2018**

**REI PROJECT NO. 016RAL-100**

NC ENGINEERS LICENSE # C-1520

**REI ENGINEERS**

9121 ANSON WAY, SUITE 100, RALEIGH, NC 27615

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RALEIGH | CHARLOTTE | CHARLESTON | TAMPA | RICHMOND | VIRGINIA BEACH

REPLACEMENT OF THE MAIN ROOF AND HVAC UNIT AT THE  
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REPLACEMENT OF THE MAIN ROOF AND HVAC  
AT THE CRIMINAL JUSTICE RESOURCE CENTER

IFB No. 18-018

BID SCHEDULE

(Note: The below dates are subject to change)

Advertisement Date	December 13, 2017
Pre-Bid Conference and Site Visit Date and Location	January 3, 2018 at 10:00 AM Criminal Justice Resource Center 326 E. Main Street Durham, North Carolina
Last Date for Questions	January 11, 2018 by 3:00 PM
Bid Due Date	January 25, 2018 by 2:00 PM

## **0001 – Advertisement for Bids**



**ADVERTISEMENT FOR BIDS**

**IFB No. 18-018**

**REPLACEMENT OF THE MAIN ROOF AND HVAC UNIT AT THE  
CRIMINAL JUSTICE RESOURCE CENTER**

Bids will be received by the County of Durham Purchasing Division, Durham County Administrative Complex, 200 East Main Street, 4<sup>th</sup> Floor, Durham, North Carolina 27701, until 2:00 P.M. on January 25, 2018. The work contemplated will include the removal and disposal of the existing roofing system, provide a tapered lightweight insulating cellular concrete system and adhere a felt-backed PVC single-ply membrane. Replacement of HVAC unit.

A Pre-Bid Conference will be held on January 3, 2018 at 10:00 A.M. at the Criminal Justice Resource Center, 326 E. Main Street, Durham, North Carolina 27701. All bidders who intend to bid are encouraged to attend.

A Site Visit will be held immediately following the Pre-Bid Conference.

Instructions for submitting bids, specifications, a complete description of the work involved, and the apparatus, supplies, materials, and equipment for which bids are invited can be examined at the office of Durham County Purchasing Division, Telephone No.: (919) 560-0051; REI Engineers, 9121 Anson Way, Suite 100, Raleigh, NC 27615, Telephone No.: 919-845-1450, and at the following locations:

City of Durham Equal Opportunity and Equal Assurance Office  
Durham , NC 27701

NC Institute of Minority Economic Development  
Durham, NC 27701

Construct Connect  
Cary, NC 27518

ISqFT Plan Room  
Raleigh, NC

Questions concerning administrative matters should be directed to Anita S. Torian, Procurement Specialist, at (919) 560-0741.

Plans, Specifications and other contract documents may be obtained by those qualified and who will make a bid, upon a deposit of **\$100.00** for each set issued to Contractors. An electronic copy can be issued at no cost if preferred Deposit checks shall be made payable to the **“County of Durham”**. Contractors may secure document sets after 8:30 A.M. Eastern Time, Monday through Friday at the office of REI Engineers, 9121 Anson Way, Suite 100, Raleigh, NC 27615, Telephone No.: 919-845-1450. The full deposit shall be returned to those Contractors who return the Specifications and Plans in good condition within ten (10) days after the date set for receiving bids. Plans and Specifications are to be returned to the office of the REI Engineers, 9121 Anson Way, Suite 100, Raleigh, NC 27615. An

Contractors who bid must be licensed to do work in the State of North Carolina under the Act to Regulate the Practice of General Contracting. The Contractor’s North Carolina License number shall be designated on the outside of the envelope containing the Bid.

As provided by Statute, cash, Bid Bond, cashier’s check or certified check in the amount of 5% of the bid must be attached to each bid/contract. Payee shall be the **“County of Durham”**. Said deposit shall guarantee that the Contract will be entered into by the successful bidder if the award is made.

Such deposit of cash, cashier’s check, or certified check may be held by the County of Durham until the successful bidder has executed and delivered the Contract documents, including Performance and Payment Bonds, to the County of Durham. Bid deposits submitted in the form of cash, cashier’s check or certified check will be deposited in the County’s account as required by North Carolina Local Government Budget and Fiscal Control Act (N.C. General Statute Chapter 159, Article 3). The bids will be evaluated and the Contract will be awarded in accordance with statutory public contract requirements as supplemented or altered by the Minority/Women Business Enterprise Utilization Ordinance of the County of Durham (M/WBE).

The County reserves the right to reject any and/or all bids, waive informalities, and/or accept such bid as appears in its judgement to be in the best interest of the County.

Publication Date: December 13, 2017

## **0002 – Instructions to Bidders**

## INSTRUCTIONS TO BIDDERS

1. For a bid to be considered, it must be in accordance with the following instructions:

Bids must be made in strict accordance on the "Bid Form" provided therefore and all blank spaces for the Bid Alternates and Unit Prices shall properly fill in. When requested alternates are not bid, the bid will be considered incomplete. The Bidders agree that the Bids on Bid Form detached from Specifications will be considered and will have the same force and effect as if attached hereto. Numbers shall be stated both in writing and in figures for the Base Bid and Alternates. **One (1) original shall be submitted to the Purchasing Division.**

**Bids are invited on the basis of a Single Prime contract. See Section 01 11 00-Summary of Work for details.**

Any modification to the Bid Form (including Alternates and Unit Prices) may disqualify the Bid and may cause the Bid to be rejected.

The Contractor shall fill in the Form of Bid as follows:

- A. If the documents are executed by a sole Owner, that fact shall be evidenced by the word of "Owner" appearing after the name of the person.
- B. If the documents are executed by a Partnership, that fact shall be evidenced by the word of "Co-Partner" appearing after the name of the partner executing them.
- C. If the documents are executed on the part of a Corporation, they shall be executed by either the President or the Vice-President and attested by the Secretary or Assistant Secretary in either case and the title of the office of such person shall appear after their signatures. The Seal of the Corporation shall be impressed on each signature page of the documents.
- D. If the Bid is made by a Joint Venture, it shall be executed by each member of the Joint Venture in the above form for sole Owner, Partnership, or Corporation, whichever form is applicable.
- E. All signatures shall be properly witnessed.
- F. It shall be the specific responsibility of the Bidder to deliver this Bid to the proper official at the appointed place and prior to the announced time for the receiving of Bids. Later delivery of a Bid for any reason, including delivery by the United States Mail, shall disqualify the Bid.
- G. Modifications of previously deposited Bids will be acceptable only if delivered to the place of the bid opening prior to the time for opening Bids.
- H. Unit Prices quoted in the Bids shall include overhead and profit and shall be the full compensation for the Contractor's cost involved in the work.



2. It is understood and mutually agreed that by submitting a Bid the Contractor acknowledges that he/she has carefully examined the bidding documents pertaining to the work, the locations,
3. accessibility and general character of the site of the work and all existing buildings and structures within and adjacent to the site; and has satisfied him/herself as to the nature of the work, the condition of the existing buildings and structures, the conformation of the ground, the character, quality and quantity of the materials to be encountered; the character of the equipment, machinery, plant and other facilities needed preliminary to and during prosecuting of the work; the general and local conditions; the construction hazards; and all other matters, including but not limited to, the labor situation which can in any way affect the work under the Contract; and including all safety measures required by the Occupational Safety Health Act of 1970 and all rules and regulations issued pursuant thereto. It is further mutually agreed that by submitting a Bid, the Contractor acknowledges that he/she has satisfied him/herself as to the feasibility and meaning of the plans, drawings, Specifications, and other contract documents for the construction of the work and that he/she accepts all terms, conditions and stipulations contained therein and that he/she is prepared to work in cooperation with the other contractors performing work on the site.
4. **Material substitutions will be considered during the bidding phase until 3:00 P.M., on January 11, 2018. No substitutions will be considered after that time and date.**
5. **To ensure a fair bidding process, all other questions from the contractors must be emailed to [purchasinggroup@dconc.gov](mailto:purchasinggroup@dconc.gov) no later than 3:00 P.M., on January 11, 2018. These questions will be addressed in an Addendum.**
5. Any Addenda to Specifications issued during the time of bidding will be sent to each Bidder, return receipt requested and are to be considered covered in the bid and in closing a Contract will become part thereof. **It shall be the Contractor's responsibility to ascertain prior to bid time the addenda issued and to see that his/her bid includes any changes thereby required.**

Should the Bidder find discrepancies in, or omissions from, the drawings or documents or should he/she be in doubt as to their meaning, he/she shall at once notify the County of Durham. If any bidder contemplating submitting a Bid for the proposed contract is in doubt as to the true meaning of any part of the plans, Specifications, or other proposed contract documents, he/she may submit to the County of Durham a written request for an interpretation thereof. Any interpretation of the proposed document will be made only by Addendum duly issued, a copy of which will be mailed or delivered to each person receiving a set of such documents. The Project Manager will not be responsible for any oral explanation, instructions, or interpretation of the proposed documents. Notification should not be later than seven (7) days prior to the date set for receipt of Bids.

All Addenda shall be acknowledged by the bidder(s) on the Bid Form. Failure to do so may disqualify the Bid and may cause the Bid to be rejected.

6. As required by N.C. General Statutes, cash, a **certified check** drawn on some bank or trust company insured by the Federal Deposit Insurance Corporation, or Bid Bond in the amount of 5% (five percent) of the amount of the bid must be attached to each Bid (Bid Security). **Each bid/contract**

7. **requires a separate bid bond deposit.** Said deposit to be retained by the Owner in event of failure of the successful Bidder to execute the Contract within fifteen (15) days after the award or to give satisfactory Surety as required by law. **“Payee shall be the County of Durham.”**

Such Security of cash or certified check may be held by the County of Durham until the successful bidder has executed and delivered the Contract documents, including Performance and Payment Bonds, to the County of Durham. Bid Security submitted in the form of cash, cashier’s check or certified check will be deposited in the County’s account as required by North Carolina Local Government Budget and Fiscal Control Act (N.C. General Statute Chapter 159, Article 3). The bids will be evaluated and the Contract will be awarded in accordance with statutory public contract requirements as supplemented or altered by the Minority/Women Business Enterprise Utilization Ordinance (M/WBE) of the County of Durham.

8. Bids and Bid Security shall be received in strict accordance with requirements of the General Statutes of North Carolina. Prior to opening of Bids on the project, the Bidder will be permitted to change or withdraw his Bid as allowed by 1-G of these Instructions.

A Bidder may withdraw its formal Bid after the Bids are opened without forfeiting its Bid deposit in certain limited circumstances. Withdrawal after opening is permitted only if all conditions specified in North Carolina General Statutes Section 143-129.1 are met.

All copies of the Bid, the Bid Security, if any, and any other documents required to be submitted with the bid shall be enclosed in a sealed opaque envelope. The envelope can be hand delivered or mailed and shall be addressed to the Durham County Purchasing Division, Durham County Administrative Complex, 200 East Main Street, 4<sup>th</sup> Floor Durham, NC 27701, and should be identified with the project name, time and date of Bid Opening, the Bidder’s name and address, Bidder’s license number and designated portion of the work for which the Bid is submitted.

9. Contractors who bid must be licensed to do work in the State of North Carolina under the Act to Regulate the Practice of General Contracting. The Contractor’s North Carolina license number shall be designated on the outside of the envelope containing the Bid.

10. **This is an informal construction bid process. Therefore, Bids will be received only and will not be publicly opened and read.**

11. Bids shall be evaluated using the Total Bid. The Total Bid shall be the summation of the product of all of the Items’ Unit Bid Prices by their Estimated Quantities. In the event of a math error, the Extended Totals and the Total Bid will be corrected based on the Unit Price furnished in the Bid. Bids with math errors will be compared using the corrected Total Bid (i.e., the math must be correct before a bid is considered for award).

The Owner shall take into consideration the past performance of the Bidder on Construction Contracts for the County of Durham, the State of North Carolina, or other governmental agencies with particular concern given to completion times, quality of work, cooperation with other Contractors, and cooperation with the Project Manager and Owner.

The Owner shall have the right to accept Alternates in any order of combination. The Owner reserves the right to reject any and all bids, to waive all technicalities and irregularities, and to make the award as considered to be in the best interest of the Owner.

12. The successful Bidder, upon award of the Contract, shall furnish a Performance Bond in an amount equal to one hundred percent (100%) of the Contract Price.
13. The successful Bidder, upon award of Contract, shall furnish a Payment Bond in an amount equal to one hundred percent (100%) of the Contract Price.
14. For all work being performed under this Contract, the County of Durham has the right to inspect, examine, and to make copies of any books, accounts, records, and other writings related to the performance of the work. Audit shall take place at times and locations mutually agreed upon by both parties, although the contractor must make the materials to be audited available within one (1) week of the request.
15. Contract completion time for all work on this project is 120 days. Bidders shall note the 120 calendar day time limit for the completion of such work as may be contracted for as follows:  
Replacement of Main Roof and HVAC Unit at the Criminal Justice Resource Center, 326 East Main Street, Durham, North Carolina.
16. Durham County has established the following goals for minority/women business enterprise (M/WBEs) participation in the procurement of goods, services and construction. **Questions concerning Minority and Women Business Enterprises (M/WBE) should be directed to Rick Greene, Assistant Procurement Manager, at (919) 560-0059.**

Categories	Construction	Architect/ Engineer	Services	Goods	MWBE Availability % <i>(Median Availability)</i>
Black American	14.6	9.8	10.9	2.8	<b>10.4%</b>
Asian American	1.3	3.0	1.1	.43	<b>1.3%</b>
Hispanic American	4.2	1.8	1.1	.43	<b>1.5%</b>
American Indian	.65	.75	1.0	.5	<b>.70%</b>
White Female	13.8	11.0	9.5	7.1	<b>10.3%</b>
<b>Overall MWBE Participation Goal =</b>					<b>25.0%</b>

Bidders are required to submit information about participating M/WBEs with their bid. The information must include the name and address of each M/WBE, a description of the work to be performed by each, and the dollar value of the work to be performed by each. Any bidder who fails to achieve the indicated M/WBE participation goal stated above is required to provide documentation demonstrating that good faith efforts were made in an attempt to meet the established goal. Affidavits A-D and Appendix E are provided to record this information and must be completed and enclosed with your bid. Any bid which does not include M/WBE information and documentation may be considered non-responsive.

M/WBE: A business which is at least 51% owned and controlled by minority group members or a woman. An M/WBE is bona fide only if the minority group or female ownership interests are real and continuing and not created solely to meet the M/WBE requirement. In addition, the M/WBE must itself perform satisfactory work or service or provide supplies under the contract and not act as a conduit. The contractual relationship must be bona fide.

Owned and controlled: (1) A sole proprietorship legitimately owned by an individual who is a minority group member or female; (2) a partnership or joint venture controlled by minorities and/or females; (3) a corporation or other entities controlled by minorities or females, and in which at least 51% of the voting interests and 51% of the beneficial ownership interests are legitimately held by minorities and/or females. These persons must control the management and operations of the business on a day-to-day basis.

A person who is a citizen or lawful permanent resident of the United States and who is:

a “Black American”; a person having origins in any of the Black racial groups of Africa;

a “Hispanic American”; a person of Spanish culture with origins in Mexico, Central or South America, or the Caribbean, regardless of race;

a “Native American”; a person who is a member or is eligible to be a member of a federally recognized Indian tribe. A federally recognized Indian tribe means an Indian tribe, or band, nation, rancho, pueblo, colony, or other organized group or community, including any Alaska native village, which is recognized by the Secretary of the Interior on October 1, 1985 as having special rights and is recognized as eligible for service provided by the United States to Indians because of their status as Indians, and any tribe that has a pending application for federal recognition on October 1, 1985, as having special rights and is recognized as eligible for services provided by the United States to Indians because of their status as Indians, and any tribe that has a pending application for Federal recognition on October 1, 1985.

17. All bidders must complete the Vendor Application/W-9 Form and include them with their bid package. This information will be used to create or update Durham County's electronic vendor database if awarded contract.
18. A Pre-Bid Conference will be held on January 3, 2018 at 10:00 A.M. at the Criminal Justice Resource Center, 326 E. Main Street, Durham, North Carolina 27701. All bidders who intend to bid are encouraged to attend.

A Site Visit will be held immediately following the Pre-Proposal Conference.

19. **Security of Non-public Records:** Pursuant to N.C.G.S. § 132-1.7, entitled, “Sensitive Public Security Information”, public records, as defined in G.S. 132-1, shall not include information containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities. Therefore, all information provided, received, gathered or obtained by BIDDER containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities shall be held confidential and shall be used by the BIDDER only for the purpose of responding to this bid. All plans and drawings shall be returned to the County. Any breach of this paragraph by the BIDDER may result in BIDDER being barred from being awarded any contracts with the COUNTY.

20. **E-VERIFY:** As a condition of payment for services rendered under this agreement, CONTRACTOR shall comply with the requirements of Article 2 of Chapter 64 of the General Statutes. Further, if CONTRACTOR provides the services to the County utilizing a subcontractor, CONTRACTOR shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the General Statutes as well. CONTRACTOR shall verify, by affidavit, compliance of the terms of this section upon request by the COUNTY.

21. The following forms must be returned with your **original** Bid:

- a. **Bid Form (Addendum must be acknowledged on the Bid Form)**
- b. **Non-Collusion Affidavit**
- c. **Vendor Application/W-9 Form**
- d. **Bid Deposit (Bid Bond, cash, cashier's check or certified check. Power of Attorney must be included when submitting a Bid Bond)**
- e. **Affidavit of Compliance (E-Verify)**
- f. **M/WBE Forms:**

**Affidavit A and C** is required to be submitted with your Bid if your company has M/WBE participation.

**Affidavit B** is required if your company has no opportunity to sub-contract and will complete all work with Bidder's own work force. No other Affidavits must be returned.

**Affidavit D** is to be submitted only by the apparent lowest responsible, responsive bidder within 72 hours after bid closing date.

The apparent lowest responsible Bidder shall file within 30 days after the award of the contract a list of all identified subcontractors that the Contractor will use on the project.

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

**END OF INSTRUCTIONS TO BIDDERS**

## **0003 – Equal Employment Opportunity**

## EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this contract, the contractor agrees as follows:

- A. The contractor will not discriminate against any employee or applicant for employment because of race, handicap, age, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to race, handicap, age, color, religion, sex or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruiting advertising, layoff or termination rates of pay or other forms of compensation, and selection for training including apprenticeship. The contractor agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the provisions of the nondiscrimination clause.
- B. The contractor will in all solicitations or advertisements for employees placed by or on behalf of the contractor state that all qualified applicants will receive consideration for employment without regard to race, handicap, age, color, religion, sex, or national origin.
- C. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding a notice to be provided advising the labor union or workers' representative of the contractor's commitments under the Equal Employment Opportunity section of this contract and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- D. In the event of the contractor's noncompliance with nondiscrimination clauses of this contract or with any such rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further County contracts.
- E. The contractor will include the provisions of this section in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Board of County Commissioners of the County of Durham, North Carolina so that such provisions will be binding such subcontractor or vendor.

## **0004 – General Conditions of the Contract for Construction**



# **GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION**

## **TABLE OF ARTICLES**

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ADMINISTRATION OF THE CONTRACT
5. SUBCONTRACTORS
6. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7. CHANGES IN THE WORK
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9. PAYMENTS AND COMPLETION
10. PROTECTION OF PERSONS AND PROPERTY
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13. TERMINATION OR SUSPENSION OF THE CONTRACT

# GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

## ARTICLE 1 GENERAL PROVISIONS

### **1.1. BASIC DEFINITIONS**

- 1.1.1 Contract for Construction. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification.
- 1.1.2 Contract Documents. The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to execution of the Contract, advertisement or invitation to bid, Instructions to Bidders, other documents listed in the Agreement and Modifications issued after execution of the Contract. In the event of conflicts among the contract documents, the Specifications shall take precedence over the Drawings, and the Supplementary Conditions shall take precedence over the General Conditions. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Owner and a Subcontractor or Sub-subcontractor.
- 1.1.3 Contractor. The person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. Unless otherwise stated, the term "Contractor" means the General Contractor or the General Contractor's authorized representative.
- 1.1.4 Drawings. The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.
- 1.1.5 Designer. The Architect or Engineer registered in accordance with the provisions of Chapter 89C of the NC General Statutes, identified as such in the Contract for Construction and is referred to throughout the Contract Documents as if singular in number. The term "Designer" refers to the Designer or the Designer's authorized representative(s). The Designer shall be entitled to performance and enforcement of obligations under the Contract for Construction intended to facilitate performance of the Designers' duties.
- 1.1.6 Modification. A Modification is (1) a written amendment to the Contract signed by the parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Designer.
- 1.1.7 Owner. The person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Owner" means the Owner or the Owner's authorized representative.

- 1.1.8 Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.
- 1.1.9 Project Manual. The Project Manual is the volume usually assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.
- 1.1.10 Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.
- 1.1.11 Work. The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the project.

## **1.2 EXECUTION, CORRELATION, AND INTENT**

- 1.2.1 The Contract Documents shall be signed by the Owner and Contractor as provided in the Agreement. If either the Owner or Contractor or both do not sign all the Contract Documents, the Designer shall identify such unsigned Documents and insure that they are properly signed by the necessary parties.
- 1.2.2 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, correlated personal observations with requirements of the Contract Documents, has checked and verified all site conditions, and hereby waives any and all claims, present or future, for misrepresentation on the part of the Owner or Designer.
- 1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.
- 1.2.4 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any Subcontractor.
- 1.2.5 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

## **1.3 OWNERSHIP AND USE OF DESIGNER'S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS**

- 1.3.1 The Drawings, Specifications and other documents prepared by the Designer are instruments of the Designer's service through which the Work to be executed by the Contractor is described.

The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Designer. The Owner will retain all common law, statutory and other reserved rights, in addition to the copyright of the drawings, specifications and other documents prepared by the Designer. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Designer, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Designer, and copies thereof furnished to the Contractor, are for use solely with respect to this Project; they are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects without the specific written consent of the Owner and Designer. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Designer appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Designer. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Owner's copyright or other reserved rights.

#### **1.4 CAPITALIZATION**

Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to Paragraphs, Subparagraphs and Clauses in the document or (3) the titles of other documents.

#### **1.5 INTERPRETATION**

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### **ARTICLE 2** **OWNER**

#### **2.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER**

- 2.1.1 The Owner shall furnish plan and profile of existing County utilities. The Contractor is responsible for locating all existing utilities prior to Work.
- 2.1.2 Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.
- 2.1.3 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness to avoid delay in orderly progress of the Work.

- 2.1.4 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings and Project Manuals as are reasonably necessary for execution of the Work.

## **2.2 OWNER'S RIGHT TO CARRY OUT THE WORK**

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may after such seven-day period, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case, an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Designer's additional services and expenses made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior review and confirmation by the Designer. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

## **ARTICLE 3** **CONTRACTOR**

### **3.1. REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

- 3.1.1 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner pursuant to Section 2.1, and shall at once report to the Designer errors, inconsistencies or omissions discovered. If the Contractor performs any construction activity knowing or should have known it involves an error, inconsistency or omission in the Contract Documents without such notice to the Designer, the Contractor shall assume full responsibility for such performance and shall bear the full costs for correction.
- 3.1.2 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Designer immediately.
- 3.1.3 The Contractor shall perform the Work in accordance with the Contract Documents and submittals approved pursuant to Section 3.11.

### **3.2 SUPERVISION AND CONSTRUCTION PROCEDURES**

- 3.2.1 The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.

- 3.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.
- 3.2.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Designer in the Designer's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.
- 3.2.4 The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

### **3.3 LABOR AND MATERIALS**

- 3.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.
- 3.3.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.
- 3.3.3 Materials, equipment or items required for a complete job which are shown on the drawings but not mentioned in the specifications or materials, equipment or items required by the specifications but not shown on the drawings, shall be furnished and installed the same as though both shown on the drawings and required by the specifications.

### **3.4 WARRANTY**

- 3.4.1 The Contractor warrants to the Owner and Designer that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents; that the Work will be free from defects not inherent in the quality required or permitted; and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Designer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.
- 3.4.2 Except as otherwise specifically stated below, the Contractor shall guarantee his materials and workmanship against defect due to faulty materials or faulty workmanship or negligence for a period of twelve (12) months following Substantial Completion of the Work. Where the manufacturer's warranty on equipment or parts thereof exceeds twelve (12) months, the guarantee period on such equipment or parts thereof shall be extended to include the full warranty of the manufacturer. The Contractor shall repair or replace such defective materials, equipment or workmanship to the full satisfaction of the Owner within the stipulated guarantee period without cost to the Owner.

### **3.5 TAXES**

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

### **3.6 PERMITS, FEES AND NOTICES**

3.6.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract for Construction and which are legally required when bids are received or negotiations concluded.

3.6.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work.

3.6.3 It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Designer and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

3.6.4 If the Contractor performs Work the Contractor knows or should have known it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Designer and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

### **3.7 ALLOWANCES**

3.7.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities against which the Contractor makes reasonable objection.

3.7.2 Unless otherwise provided in the Contract Documents:

- (1) materials and equipment under an allowance shall be selected promptly by the Owner to avoid delay in the Work;
- (2) allowances shall cover the cost to the Contractor of materials and equipment delivered to the site and all required taxes, less applicable trade discounts;
- (3) Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances;
- (4) whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by a Change Order. The amount of the Change Order shall

reflect (a) the difference between actual costs and the allowances under Clause 3.7.2.(2) and (b) changes in Contractor's costs under Clause 3.7.2.(3).

### **3.8 SUPERINTENDENT**

The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing upon request.

### **3.9 CONTRACTOR'S CONSTRUCTION SCHEDULES**

3.9.1 Promptly after being awarded the Contract, the Contractor shall prepare and submit for the Designer's review and comment a construction schedule for the Work. The schedule shall not exceed time limits provided in the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. If separate prime contracts are awarded by the Owner in connection with this Project, the Contractor shall additionally submit a Contractor's construction schedule for the Work to the General Contractor in order for the General Contractor to carry out its duties under Article 6.

3.9.2 The Contractor shall prepare and keep current, for the Designer's approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Designer reasonable time to review submittals.

3.9.3 The Contractor shall conform to the most recent schedules.

### **3.10 DOCUMENTS AND SAMPLES AT THE SITE**

The Contractor shall maintain at the site for the Owner one record copy of the Drawings, Specifications, addenda, Change Orders and other Modifications, in good order and marked currently to record changes and selections made during construction, and in addition approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Designer and shall be delivered to the Designer for submittal to the Owner upon completion of the Work.

### **3.11 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

3.11.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

3.11.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.



- 3.11.3 Samples are physical examples, which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.
- 3.11.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Designer is subject to the limitations of Paragraph 4.1.6.
- 3.11.5 The Contractor shall review, approve and submit to the Designer Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.
- 3.11.6 The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed and approved or other appropriate action taken by the Designer. Such Work shall be in accordance with approved submittals.
- 3.11.7 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.
- 3.11.8 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Designer's review and approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Designer in writing of such deviation at the time of submittal and the Designer has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Designer's approval thereof.
- 3.11.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, product Data, Samples or similar submittals, to revisions other than those requested by the Designer on previous submittals.
- 3.11.10 Informational submittals upon which the Designer is not expected to take responsive action may be so identified in the Contract Documents.
- 3.11.11 When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Designer shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

### **3.12 USE OF SITE**

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

### **3.13 CUTTING AND PATCHING**

3.13.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

3.13.2 The Contractor shall not damage or endanger a portion of the work or fully or partially completed construction of the Owner or separate contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

### **3.14 CLEANING UP**

3.14.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials.

3.14.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

### **3.15 ACCESS TO WORK**

The Contractor shall provide the Owner and Designer access to the Work in preparation and progress wherever located.

### **3.16 ROYALTIES AND PATENTS**

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner and Designer harmless from loss unless a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Designer.

### **3.17 INDEMNIFICATION**

- 3.17.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Designer, Designer's consultants, and agents and employees of any of them from and against claims, damages, economic losses and expenses of any kind (including but not limited to fees and charges of engineers, attorneys, and other professionals and costs related to court action or arbitration), arising out of or resulting from performance of the Work under this Agreement, provided such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable unless caused in whole or part by the negligence of Owner. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.17.
- 3.17.2 In claims against any person or entity indemnified under this Section 3.17, by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Section 3.17, shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.
- 3.17.3 The obligations of the Contractor under this Section 3.17, shall not extend to the liability of the Designer, the Designer's consultants, and agents and employees of any of them arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or (b) the giving of or the failure to give directions or instructions by the Designer, the Designer's consultants, and agents and employees of any of them provided such giving or failure to give is the primary cause of the injury or damage.

## **ARTICLE 4**

### **ADMINISTRATION OF THE CONTRACT**

#### **4.1 DESIGNER'S ADMINISTRATION OF THE CONTRACT**

- 4.1.1 The Designer will provide administration of the Contract as described in the Contract Documents, and will be the Owner's representative during construction through final payment, and with the Owner's concurrence, from time to time during the correction period described in Paragraph 11.2. The Designer will advise and consult with the Owner. The Designer will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.
- 4.1.2 The Designer will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 3.2. The Designer will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Designer will not have control over or

charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

- 4.1.3 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Designer. Communications by and with the Designer's consultants shall be through the Designer. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Designer.
- 4.1.4 Based on the Designer's inspections, observations and evaluations of the Contractor's Applications for Payment, the Designer will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.
- 4.1.5 The Designer will have authority to reject Work which does not conform to the Contract Documents. Whenever the Designer considers it necessary or advisable for implementation of the intent of the Contract Documents, the Designer will have authority to require additional inspection or testing of the Work in accordance with Paragraphs 12.5.2 and 12.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Designer nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Designer to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.
- 4.1.6 The Designer will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Designer's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time in the Designer's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Designer's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Article 3. The Designer's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Designer, of any construction means, methods, techniques, sequences or procedures. The Designer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.
- 4.1.7 The Designer will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.
- 4.1.8 The Designer will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.

- 4.1.9 The Designer will interpret and decide matters concerning performance under and requirements of the Contract documents on written request of either the Owner or Contractor. The Designer's response to such requests will be made with reasonable promptness and within any time limits agreed upon. If no agreement is made concerning the time within which interpretations required of the Designer shall be furnished in compliance with this Paragraph 4.1.9, then delay shall not be recognized on account of failure by the Designer to furnish such interpretations until 15 days after written request is made for them.
- 4.1.10 Interpretations and decisions of the Designer will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Designer will endeavor to secure faithful performance by both Owner and Contractor, and will not show partiality to either.
- 4.1.11 The Designer's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.
- 4.1.12 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Article 11.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Designer may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Designer to stop the Work shall not give rise to a duty on the part of the Designer to exercise this right for the benefit of the Contractor or any other person or entity.

## **4.2 CLAIMS AND DISPUTES**

- 4.2.1 A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made pursuant to the Dispute Resolution Procedure set forth in Paragraph 4.4. The responsibility to substantiate Claims shall rest with the party making the Claim.
- 4.2.2 DECISION OF DESIGNER. Claims, including those alleging an error or omission by the Designer, shall be referred initially to the Designer for action as provided in Paragraph 4.4. A decision by the Designer shall be required as a condition precedent to mediation and litigation of a Claim between any party involved in this construction Project as to all such matters arising prior to the date final payment is due, regardless of whether such matters relate to execution and progress of the Work or the extent to which the Work has been completed. The decision by the Designer in response to a Claim shall not be a condition precedent to litigation in the event (1) the position of Designer is vacant, (2) the Designer has not received evidence or has failed to render a decision within agreed time limits, or (3) 45 days have passed after the Claim has been referred to the Designer.
- 4.2.3 TIME LIMITS ON CLAIMS. Claims by the Contractor must be made within 10 days after occurrence of the event giving rise to such Claim or within 10 days after the Contractor first recognizes the condition giving rise to the Claim, whichever is later. Claims must be made by written notice. An additional Claim made after the initial Claim has been implemented by Change Order will not be considered.

- 4.2.4 CONTINUING CONTRACT PERFORMANCE. Pending final resolution of a Claim, unless otherwise agreed in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.
- 4.2.5 WAIVER OF CLAIMS: FINAL PAYMENT. The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:
- (1) unsettled claims arising out of the Contract; or
  - (2) failure of the Work to comply with the requirements of the Contract Documents;  
or
  - (3) terms of special warranties required by the Contract Documents.
- 4.2.6 CLAIMS FOR CONCEALED OR UNKNOWN CONDITIONS. If conditions are encountered at the site which are (a) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (b) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than 10 days after first observance of the conditions. The Designer will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Designer determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified the Designer shall so notify the Owner and Contractor in writing stating the reasons, Claims by either party in opposition to such determination must be made within 21 days after the Designer has given notice of the decision. If the Owner and Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be referred to the Designer for initial determination, subject to further proceedings pursuant to paragraph 4.4.
- 4.2.7 CLAIMS FOR ADDITIONAL COST. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Paragraph 10.3. If the Contractor believes additional cost is involved for reasons including but not limited to (a) a written interpretation from the Designer, (b) a written order for a minor change in the Work issued by the Designer, (c) termination of the Contract by the Owner, Claim shall be filed in accordance with the procedure established herein. This Article and Article 7, shall be the exclusive means by which the Contractor may claim additional cost or damages from the Owner, and the Contractor hereby waives any and all right to claim additional cost or damages by any other remedy including, without limitation, quantum meruit, subrogation, or implied contract.
- 4.2.8 CLAIMS FOR ADDITIONAL TIME. If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary. Adverse weather conditions shall not be a basis for a Claim for additional time nor costs.

### **4.3 INJURY OR DAMAGE TO PERSON OR PROPERTY**

If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts such party is legally liable, written notice as such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 10 days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Subparagraphs 4.2.7 or 4.2.8.

### **4.4 DISPUTE RESOLUTION PROCEDURE**

- 4.4.1 To prevent all disputes and litigation, it is agreed by the parties that any claim, question, difficulty or dispute arising from this Agreement or the construction process shall be first submitted to the Designer to address the issue. Upon review of the Claim, the Designer shall take one or more of the following preliminary actions within ten (10) days of receipt of a Claim: (1) request additional supporting data from the claimant, (2) submit a schedule to the parties indicating when the Designer expects to take action, (3) reject the Claim in whole or in part stating reasons for rejection, (4) recommend approval of the Claim by the other party, or (5) suggest a compromise. The Designer may also, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim.
- 4.4.2 If a Claim has been resolved, the Designer will prepare or obtain appropriate documentation.
- 4.4.3 If a Claim has not been resolved, the party making the Claim shall, within ten (10) days after the Designer's preliminary response, take one or more of the following actions: (1) submit additional supporting data requested by the Designer, (2) modify the initial Claim and resubmit it to the Designer, or (3) notify the Designer that the initial Claim stands and submit the Claim to the Durham County Manager for mediation pursuant to Paragraph 4.4.4, below.
- 4.4.4 The Durham County Manager, as mediator, shall address any properly submitted claim, question, difficulty or dispute arising from this Agreement or the construction process, which has not been satisfactorily resolved by the Designer. Such requests shall be made to the Durham County Manager in writing within ten (10) days after the Designer's preliminary response. The mediator shall notify Contractor in writing of the decision within thirty (30) calendar days from the date of the submission of the claim, question, difficulty or dispute, unless the mediator requires additional time to gather information or allow the parties to provide additional information. The mediator's orders, decisions and decrees shall be non-binding. Mediation, pursuant to this Section, shall be a pre-condition to initiating litigation concerning the dispute. During the pendency of any dispute and after a determination thereof, the parties to the dispute shall act in good faith to mitigate any potential damages including utilization of construction schedule changes and alternate means of construction.
- 4.4.5 The mediation session shall be private. Prior to commencement of mediation, if requested by either party or the mediator, the parties and the mediator shall execute a written confidentiality agreement in accordance with the provisions of North Carolina law. All such mediation sessions shall be held in Durham County, North Carolina.

- 4.4.6 If, as a result of mediation, a voluntary settlement is reached and the parties to the dispute agree that such settlement shall be reduced to writing, the mediator shall be deemed appointed and constituted an arbitrator for the sole purpose of signing the mediated settlement agreement. Such agreement shall be, and shall have the same force and effect as an arbitration award, and judgement may be entered upon it in accordance with applicable law in any court of competent jurisdiction.
- 4.4.7 If the disputed issue cannot be resolved in mediation or either party disagrees with the results of the mediation, the parties may seek resolution in the General Court of Justice in the County of Durham and the State of North Carolina. If a party fails to comply in strict accordance with the requirements of this Article, the non-complying party specifically waives all of its rights provided hereunder, including its rights and remedies under State law.
- 4.4.8 The dispute resolution procedure set forth in this Section shall be made available to any party involved in this construction project including County, Contractor, Designer, Subcontractors as well as Sub-subcontractors and is a precondition to initiation of litigation concerning the dispute.

## ARTICLE 5 SUBCONTRACTORS

### **5.1 DEFINITIONS**

- 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.
- 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### **5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK**

- 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Designer the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work, including (1) Heating, ventilating, and air conditioning, (2) Plumbing, (3) Electrical, and (4) General. The Designer will promptly reply to the Contractor in writing stating whether or not the Owner or the Designer, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Designer to reply promptly shall constitute notice of no reasonable objection.
- 5.2.2 The Contractor shall NOT substitute any person or company listed in the Contractor's original Bid Proposal, except (1) if the listed subcontractor's bid is later determined by the Contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract



for the complete performance of the work, or (2) with the approval of the Owner for good cause shown by the Contractor.

### **5.3 SUBCONTRACTUAL RELATIONS**

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms and conditions of the Contract Documents and Contract for Construction, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these documents, assumes toward the Owner and Designer. Each subcontract agreement shall preserve and protect the rights of the Owner and Designer under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

## **ARTICLE 6**

### **CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

#### **6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS**

- 6.1.1 The Owner reserves the right to perform construction or operations related to the project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site.
- 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner- Contractor Agreement.
- 6.1.3 The General Contractor shall provide for coordination of the activities of each separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate Contractors and the General Contractor in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor and separate contractors until subsequently revised.
- 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be

subject to the same obligations and to have the same rights which apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10 and 11.

- 6.1.5 The General Contractor shall be responsible for scheduling the work of all contractors; the maintenance of the progress schedule for all prime contractors for this project; and for the notification of the Designer of any changes in the progress schedule.

## **6.2 MUTUAL RESPONSIBILITY**

- 6.2.1 The Contractor shall afford the Owner and separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

- 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Designer apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

- 6.2.3 Costs caused by delays, by improperly timed activities, defective construction, or any other damages shall be borne by the party responsible therefor. The Owner shall not be liable nor responsible for any delays or damages to the Contractor caused by separate Contractors or the Designer.

- 6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate Contractors as provided in Paragraph 10.2.5.

- 6.2.5 Claims and other disputes and matters in question between the Contractor and a separate Contractor shall be subject to the provisions of Sections 4.2 and 4.4, provided the separate Contractor has reciprocal obligations.

- 6.2.6 The Owner and each separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Paragraph 3.13.

## **6.3 OWNER'S RIGHT TO CLEAN UP**

If a dispute arises among the Contractor, separate Contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Paragraph 3.14, the Owner may clean up and allocate the cost among those responsible as the Designer determines to be just.

ARTICLE 7  
CHANGES IN THE WORK

**7.1 CHANGES**

- 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive, or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.
- 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Designer; a Construction Change Directive requires agreement by the Owner and Designer and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Designer alone pursuant to Paragraph 7.4.
- 7.1.3 Changes in the work shall be performed under applicable Provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.
- 7.1.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a proposed Change Order or Construction Change Directive that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.
- 7.1.5 Overhead and profit shall not exceed 15% of the value of labor and material for work performed by any contractor or subcontractor. If the work is performed by a subcontractor, the prime contractor's overhead and profit shall not exceed 5%.

**7.2 CHANGE ORDERS**

- 7.2.1 A Change Order is a written instrument prepared by the Designer and signed by the Owner, Contractor, and Designer, stating their agreement upon all of the following:
- (1) a change in the Work;
  - (2) the amount of the adjustment in the Contract Sum, if any; and
  - (3) the extent of the adjustment in the Contract Time, if any.
- 7.2.2 Methods used in determining adjustments to the Contract Sum may include those listed in Paragraph 7.3.3.

**7.3 CONSTRUCTION CHANGE DIRECTIVES**

- 7.3.1 A Construction Change Directive is a written order prepared by the Designer and signed by the Owner and Designer, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

unit prices stated in the Contract Documents or subsequently agreed upon;

cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

(4) as provided in Paragraph 7.3.6.

7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Designer of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Designer on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, and also under clause 7.3.3(3), the Contractor shall keep and present, in such form as the Designer may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Paragraph 7.3.6 shall be limited to the following:

costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and

additional costs of supervision and field office personnel directly attributable to the change.

7.3.7 Pending final determination of cost to the Owner, amounts not in dispute may be included in Applications for Payment. The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Designer. When both additions and credits covering related Work or

substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

- 7.3.8 If the Owner and Contractor do not agree with the adjustment in Contract Time or the method for determining it, the adjustment or the method shall be referred to the Designer for determination.
- 7.3.9 When the Owner and Contractor agree with the determination made by the Designer concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

#### **7.4 MINOR CHANGES IN THE WORK**

The Designer will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

### **ARTICLE 8** **TIME**

#### **8.1 DEFINITIONS**

- 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.
- 8.1.2 The date of commencement of the Work is the date established in the Agreement. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible.
- 8.1.3 The date of substantial Completion is the date certified by the Designer in accordance with Paragraph 9.9.
- 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

#### **8.2 PROGRESS AND COMPLETION**

- 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work. The Contractor and the Contractor's surety shall be liable for and shall pay the Owner such sums as shall be set forth in the Agreement between Owner and Contractor as liquidated damages each calendar day of delay until the work is substantially complete.
- 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by the Contract for Construction to be furnished by the Contractor. The date of commencement of the work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by a notice to proceed given by the Designer, the

Contractor shall notify the Owner and Designer in writing not less than five days before commencing the Work.

- 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

### **8.3 DELAYS AND EXTENSIONS OF TIME**

- 8.3.1 If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Designer, or of an employee of either, or of a separate Contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidably casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending litigation, or by other causes which the Designer determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Designer may determine.
- 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 4.2.8.
- 8.3.3 Should the work be interrupted or hindered by the Owner or Designer, the Contractor shall be entitled to an extension of time pursuant to Paragraph 4.2 in an amount equal to such interruption or hindrance but such interruption or hindrance shall not constitute a claim for damages nor for loss of anticipated profits by the Contractor.
- 8.3.4 Should the work be delayed in whole by any act or acts of the Contractor, the Contractor shall not be entitled to an extension of time pursuant to Paragraph 4.2, nor shall such delay constitute a claim either for damages or for loss of anticipated profits by the Contractor. Should the work be delayed in part by any act or acts of the Contractor and in part by any act or acts of the Owner or Designer, the Contractor shall be entitled to an extension of time pursuant to Paragraph 4.2 in an amount equal to that portion of the delay for which the Contractor is not responsible, but such delay shall not constitute a claim either for damages or for loss of anticipated profits by the Contractor.
- 8.3.5 Should the work be delayed, interrupted or hindered, in whole or in part, by any act or acts of any separate prime contractors, the Contractor shall be entitled to an extension of time pursuant to Paragraph 4.2.8 in an amount equal to such delay, interruption or hindrance but such delay, interruption or hindrance shall not constitute a claim for damages nor for loss of anticipated profits by the Contractor.

## **ARTICLE 9**

### **PAYMENTS AND COMPLETION**

#### **9.1 CONTRACT SUM**

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

## **9.2 SCHEDULE OF VALUES**

Before the first Application for Payment, the Contractor shall submit to the Designer a Schedule of Values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Designer may require. This Schedule of Values, unless objected to by the Designer, shall be used as a basis for reviewing the Contractor's Applications for Payment.

## **9.3 APPLICATIONS FOR PAYMENT**

- 9.3.1 At least twenty (20) days before the date established for each progress payment, the Contractor shall submit to the Designer an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized, supported by such data substantiating the Contractor's right to payment as the Owner or Designer may require, such as copies of requisitions from subcontractors and material suppliers and reflecting retainage if provided for elsewhere in the Contract Documents.
- 9.3.2 Such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives but not yet included in Change Orders.
- 9.3.3 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.
- 9.3.4 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.
- 9.3.5 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work.
- 9.3.6 Provided an Application for Payment is received by the Designer not later than the tenth (10<sup>th</sup>) day of a month, the Owner shall make payment to the Contractor not later than the thirtieth (30<sup>th</sup>) day of the month.

#### 9.4 **RETAINAGE**

To ensure proper performance of this Contract, Owner shall retain five percent (5%) of the amount of each approved Application for Payment until the project work is 50% complete provided that the Contractor continues to perform satisfactorily and any non-conforming work identified in writing prior to that date has been corrected by the Contractor and accepted by the Owner. If the Owner determines the Contractor's performance is unsatisfactory, the Owner may reinstate retainage in the amount of 5% for each subsequent periodic Application for Payment until the Contractor's performance becomes satisfactory. The project shall be deemed fifty percent (50%) complete when the Contractor's gross project invoices, excluding the value of materials stored off-site, equal or exceed fifty percent (50%) of the value of the contract, except the value of materials stored on-site shall not exceed twenty percent (20%) of the contractor's gross project invoices for the purpose of determining whether the project is fifty percent (50%) complete. Following 50% completion of the project, the Owner may also withhold additional retainage from any subsequent periodic payment, not to exceed 5%, in order to allow the Owner to retain 2 ½% total retainage through the completion of the project. Within sixty (60) days after the submission of a final pay application, the Owner with written consent of the Surety shall release to the Contractor all retainage on payments held by the Owner if (1) the Owner receives a certificate of substantial completion from the architect, Designer or design consultant in charge of this Project, or (2) the Owner receives beneficial occupancy or use of the project. However, the Owner may retain sufficient funds to secure completion of the project or corrections to any work. If the Owner retains funds, the amount retained shall not exceed two and one half times the estimated cost of the work to be completed or corrected. Any reduction in the amount of retainage on payments shall be with the consent of the Contractor's Surety. Retainer provisions contained in Contractor's subcontracts may not exceed the terms and conditions for retainage provided herein. Contractor is further required to satisfy the retainage provisions of N.C.G.S. 143-134.1(b2) with regard to subcontracts for early finishing trades (structural steel, piling, caisson, and demolition) and to coordinate the release of retainage for such trades from the retainage held by Owner from the Contractor pursuant to statute. Nothing herein shall prevent the Owner from withholding payment to the Contractor in addition to the amounts identified herein 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.

#### 9.5 **CERTIFICATES FOR PAYMENT**

- 9.5.1 The Designer will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Designer determines is properly due, or notify the Contractor and Owner in writing of the Designer's reasons for withholding certification in whole or in part as provided in Paragraph 9.6.1.
- 9.5.2 The Designer's certification for payment shall constitute a representation to the Owner, based on the Designer's inspections at the site and on the data comprising the Contractor's Application for Payment, that the Work has progressed to the point indicated and that the inspections of the construction, repairs, or installations have been conducted with the degree of care and professional skill and judgment ordinarily exercised by a member of his profession; and that to the best of his knowledge and in the professional opinion of the Designer, the Contractor has



fulfilled the obligations of such plans, specifications, and contract. The Designer's certification for payment shall be signed and sealed by the Designer and presented to the Owner. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the Designer. The issuance of a Certificate for Payment shall further constitute a representation by the Designer, that the Contractor is entitled to payment in the amount certified.

## **9.6 DECISIONS TO WITHHOLD CERTIFICATION**

- 9.6.1 The Designer may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Designer's opinion, the representations to the Owner required by Paragraph 9.5.2 cannot be made. If the Designer is unable to certify payment in the amount of the Application, the Designer will notify the Contractor and Owner as provided in Paragraph 9.5.1. If the Contractor and Designer cannot agree on a revised amount, the Designer will promptly issue a Certificate for Payment for the amount for which the Designer is able to make such representations to the Owner. The Designer may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Designer's opinion to protect the Owner from loss due to:

defective Work not remedied;

third party claims filed or reasonable evidence indicating probable filing of such claims;

failure of the Contractor to make payments properly to Subcontractors or for labor,  
materials or equipment;

reasonable evidence that the Work cannot be completed for the unpaid balance of the  
Contract Sum;

damage to the Owner or another contractor;

(6) reasonable evidence that the Work will not be completed within the Contract Time, and  
that the unpaid balance would not be adequate to cover actual or liquidated damages for  
the anticipated delay; or

persistent failure to carry out the Work in accordance with the Contract Documents.

- 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

## **9.7 PROGRESS PAYMENTS**

- 9.7.1 After the Designer has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Designer.

- 9.7.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The

Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in similar manner.

- 9.7.3 The Designer will furnish to a Subcontractor, upon request and if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Designer and Owner on account of portions of the Work done by such Subcontractor.
- 9.7.4 Neither the Owner nor Designer shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.
- 9.7.5 Payment to material suppliers shall be treated in a manner similar to that provided in Paragraphs 9.7.2, 9.7.3, and 9.7.4.
- 9.7.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

## **9.8 FAILURE OF PAYMENT**

The Contractor shall not stop the Work for the failure of the Designer to issue a Certificate of Payment, or the Owner to make timely payment.

## **9.9 SUBSTANTIAL COMPLETION**

- 9.9.1 Substantial Completion is the stage in the progress of the Project when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents, so the Owner can occupy or utilize the Work for its intended use.
- 9.9.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Designer a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item or such list does not alter the responsibility for the Contractor to complete all Work in accordance with the contract Documents. Upon receipt of the Contractor's list, the Designer will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Designer's inspection discloses any item, whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Designer. The Contractor shall then submit a request for another inspection by the Designer to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Designer will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of

Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate.

- 9.9.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Designer, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

#### **9.10 PARTIAL OCCUPANCY OR USE**

- 9.10.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Designer as provided under Subparagraph 9.9.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Designer.
- 9.10.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Designer shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.
- 9.10.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

#### **9.11 FINAL COMPLETION AND FINAL PAYMENT**

- 9.11.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Designer will promptly make such inspections and, when the Designer finds the Work acceptable under the Contract Documents and the Contract fully performed, the Designer will promptly issue a Final Certificate for Payment stating that to the best of the Designer's knowledge, information and belief, and on the basis of the Designer's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said Final Certificate is due and payable. The Designer's Final Certificate for Payment will constitute a further representation that the conditions listed in Paragraph 9.11.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.
- 9.11.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Designer (1) an affidavit that payrolls, bills for materials and

equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract for Construction to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5) if required by the Owner, other or additional data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances rising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.11.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Designer so confirms, the Owner shall, upon application by the Contractor and certification by the Designer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for work not fully completed and accepted is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Designer prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.11.4 Acceptance of final payment by the Contractor, Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

### **10.1 SAFETY PRECAUTIONS AND PROGRAMS**

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract and construction of the Project.

10.1.2 In the event the Contractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (hereinafter "APCB") which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and Designer by phone and in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner and Contractor if in fact the material is asbestos or PCB and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or PCB, or when it has been rendered harmless, by written

agreement of the Owner and Contractor, or in accordance with final determination by the Designer.

- 10.1.3 The Contractor shall not be required to perform without consent of Owner and Designer any Work relating to asbestos or PCB.

## **10.2 SAFETY OF PERSONS AND PROPERTY**

- 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

employees on the working on the Project and other persons who may be affected thereby; the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

- (3) other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

- 10.2.2 The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury, or loss.

- 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including erecting necessary barricades or other temporary walls and structures as required during the period of construction, posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

- 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

- 10.2.5 The Contractor shall promptly remedy damage and loss to property referred to in Paragraphs 10.2.1.(2) and (3), caused in whole or in part by the Contractor, Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Paragraphs 10.2.1.(2) and (3), except damage or loss attributable to acts or omissions of the Owner or Designer and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Article 3. All costs to repair any damage and loss to property referred to in Paragraphs 10.2.1.(2) and (3), shall be the sole responsibility of the Contractor and such repair or replacement shall be performed expeditiously without cost to the Owner.

- 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's

Superintendent, required under Paragraph 3.8, unless otherwise designated by the Contractor in writing to the Owner and Designer.

- 10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.
- 10.2.8 Existing utilities have been identified and described in the Contract Documents insofar as information is reasonably available, however, it is the Contractor's responsibility to verify such information and to preserve all existing utilities whether shown in the Contract Documents or not. If utility conflicts are encountered by the Contractor during construction, Contractor shall file sufficient notice to the owners of the utilities so that they may make the necessary adjustments, as well as the Designer or Designer.

### **10.3 EMERGENCIES**

In an emergency affecting the safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraphs 4.2.7, 4.2.8 and Article 7.

## **ARTICLE 11**

### **UNCOVERING AND CORRECTION OF WORK**

#### **11.1 UNCOVERING OF WORK**

- 11.1.1 If a portion of the Work is covered contrary to the Designer's request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Designer, be uncovered for the Designer's observation and be replaced at the Contractor's sole expense without change in the Contract Time.
- 11.1.2 If a portion of the Work has been covered which the Designer has not specifically requested to observe prior to its being covered, the Designer may request to see such Work and it shall be uncovered by the Contractor. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor in which event the Owner or separate contractor shall be responsible for payment of such costs. If such work is in accordance with the Contract Documents, the Owner, by appropriate Change Order, shall be charged with the cost of uncovering and replacement.

#### **11.2 CORRECTION OF WORK**

- 11.2.1 The Contractor shall promptly correct Work rejected by the Designer or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear any and all costs of correcting such rejected Work, including additional testing and inspections and compensation for the Designer's services and expenses made necessary thereby.

- 11.2.2 If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Paragraph 9.10.1 or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This period of one year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the work. This obligation under this Paragraph 11.2.2 shall survive acceptance of the Work under the Contract and termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.
- 11.2.3 The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.
- 11.2.4 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Paragraph 2.2. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Designer, the Owner may remove it and store the salvageable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten additional days written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Designer's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.
- 11.2.5 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.
- 11.2.6 Nothing contained in this Section 11.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one year as described in Paragraph 11.2.2, relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the work.

### **11.3 ACCEPTANCE OF NONCONFORMING WORK**

If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## **ARTICLE 12** **MISCELLANEOUS PROVISIONS**

- 12.1 **GOVERNING LAW.** This Contract for Construction shall be governed by and in accordance with the laws of the State of North Carolina. All actions relating in any way to this Contract, shall be brought in the General Court of Justice in the County of Durham and the State of North Carolina, after exhausting the dispute resolution procedure set forth in Section 4.4, herein.
- 12.2 **SUCCESSORS AND ASSIGNS.** The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.
- 12.3 **WRITTEN NOTICE.** Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the business address listed in the Contract for Construction.
- 12.4 **RIGHTS AND REMEDIES.** Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.
- 12.5 **WAIVER OF A RIGHTS.** No action or failure to act by the Owner or Designer shall constitute an obligation or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.
- 12.6 **COMPLIANCE WITH LAWS.** Contractor represents that it is in compliance with all Federal, State, and local laws, regulations or orders, as amended or supplemented. The implementation of this contract will be carried out in strict compliance with all Federal, State, or local laws regarding discrimination in employment.



## **12.7 TESTS AND INSPECTIONS**

- 12.7.1 Tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and the Owner shall bear the costs of tests, inspections, and approvals. Should any retest be necessary due to the failure of the Work to pass the first test or for any other reason whatsoever, the Contractor shall bear all related costs of retests, inspections or re-inspections, and approvals. The Contractor shall give the Designer timely notice of when and where tests and inspections are to be made so the Designer may observe such procedures.
- 12.7.2 If the Designer, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Paragraph 12.5.1, the Designer will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Designer of when and where tests and inspections are to be made so the Designer may observe such procedures.
- 12.7.3 If such procedures for testing, inspection or approval under Paragraphs 12.5.1 and 12.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Designer's services and expenses.
- 12.7.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Designer.
- 12.7.5 If the Designer is required by the Contract Documents to observe tests, inspections, or approvals, the Designer will do so promptly and, where practicable, at the normal place of testing.
- 12.7.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

## **12.8 COMMENCEMENT OF STATUTORY LIMITATION PERIOD**

As between the Owner and Contractor:

Before Substantial Completion. As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion;

Between Substantial Completion and Final Certificate for Payment. As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the Final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of

action shall be deemed to have accrued in any and all events not later than the date of issuance of the Final Certificate for Payment; and

After Final Certificate for Payment. As to acts or failures to act occurring after the relevant date of issuance of the Final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any warranty provided under Paragraph 3.4, the date of any correction of the Work or failure to correct the Work by the Contractor under Section 11.2 or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

### ARTICLE 13 TERMINATION OR SUSPENSION OF THE CONTRACT

#### **13.1 TERMINATION BY THE CONTRACTOR**

13.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 180 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor, for any of the following reasons:

issuance of an order of a court or other public authority having jurisdiction;  
an act of government, such as a declaration of national emergency, making material unavailable;  
because the Designer has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Paragraph 9.6.

13.1.2 If one of the above reasons exists, the Contractor may, upon seven (7) additional days written notice to the Owner and Designer, terminate the Contract and recover from the Owner payment for work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, not including overhead, profit, or damages.

#### **13.2 TERMINATION BY THE OWNER FOR CAUSE**

13.2.1 The Owner may terminate the Contract if the Contractor:

persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or

otherwise is in substantial breach of a provision of the Contract Documents.

- 13.2.2 When any of the above reasons exist, the Owner, upon certification by the Designer that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days written notice, terminate employment of the Contractor and may, subject to any prior rights of surety:

take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor; and  
finish the Work by whatever reasonable method the Owner may deem expedient.

- 13.2.3 When the Owner terminates the Contract for one of the reasons stated in Paragraph 13.2.1, the Contractor shall not be entitled to receive further payment.
- 13.2.4 If the unpaid balance of the Contract Sum does not cover the cost of finishing the Work, the Contractor shall pay the difference to the Owner. The amount to be paid to the Owner, shall be certified by the Designer, upon application, and this obligation for payment shall survive termination of the Contract.

### **13.3 SUSPENSION BY THE OWNER FOR CONVENIENCE**

The Owner may, without cause, order the Contractor in writing to suspend, delay, or interrupt the Work in whole or in part for such period of time as the Owner may determine.

### **13.4 BANKRUPTCY**

- 13.4.1 The bankruptcy of the Contractor shall not terminate this Contract until such time that it is specifically rejected by the Trustee or Contractor in bankruptcy. During the election period the Contractor has to assume or reject this Contract, the Contractor shall continue to perform its Work under the Contract.
- 13.4.2 In the event the Contractor in Bankruptcy assumes the Contract, the Contractor shall apply progress payments to all of its unpaid obligations on this project before using any of these monies for either administrative expenses of the bankruptcy or as general assets of the estate.

### **13.5 SECURITY OF NON-PUBLIC RECORDS**

Pursuant to N.C.G.S. § 132-1.7 entitled, "Sensitive Public Security Information", public records, as defined in N.C.G.S. § 132-1, shall not include information containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities. Therefore, all information provided, received, gathered or obtained by Contractor containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities shall be held confidential and shall be used by the Contractor only for the purpose of fulfilling the terms of this Agreement. All plans and drawings shall be returned to the County, or otherwise destroyed at the direction of the County, upon termination or expiration of this Agreement. Any breach of this paragraph by Contractor shall result in the immediate termination of this contract.



## **0005 – Special Conditions**

## **SPECIAL CONDITIONS**

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### **PROJECT: REPLACEMENT OF MAIN ROOF AND HVAC UNIT AT THE CRIMINAL JUSTICE RESOURCE CENTER**

**SCOPE OF WORK:** The work contemplated will include the removal and disposal of the existing roofing system, provide a tapered lightweight insulating cellular concrete system and adhere a felt-backed PVC single-ply membrane. Replacement of HVAC unit.

**PROJECT DESCRIPTION:** Work on this project shall be covered by a Single Prime Contract. See technical specification sections 01 11 00-Summary of Work (Work Covered by Contract) for details.

**BASE CONTRACT:** The Work includes furnishing of all materials and labor necessary for the completion of the Project: Replacement Of Main Roof And HVAC Unit At The Criminal Justice Resource Center as shown on the plans and as outlined in these specifications. The scope includes all work indicated or implied by the drawings or specifications. It includes all items that may not be specifically shown but are required for a complete and finished job or may be required by codes or regulations.

**SPECIAL NOTE:** The building will stay operational during the replacement of the HVAC Unit. First phase is to remove the existing roof top unit, set the new roof top unit, make temporary connection to the existing ductwork, and restart-up the unit. This will be executed on a weekend. Second phase is to prefabricate the new ductwork, then install each section over a weekend.

### **LOCATION:**

326 East Main Street  
Durham , North Carolina

### **DURHAM COUNTY DESIGNATED REPRESENTATIVE:**

Charles King - Project Facilitator  
Durham County General Services  
919-560-7196 cking@dconc.gov

### **ARCHITECT/ENGINEER:**

**Bob Tomlinson**

**REI Engineers**

9121 Anson Way, Suite 100  
Raleigh, North Carolina 27615  
919-841-2098  
rtomlinson@reiengineers.com

**CONTRACTOR USE OF PREMISES:** Access to the site shall be from Main Street. Keep Main Street clear at all times; do not use the road for parking unless otherwise permitted by the Durham County General Services and/or Engineering Departments and/or Police Department. Location for crane (weekend only) and material storage will be the parking lot adjacent to the Criminal Justice Resource Center.

**CONTRACT COMPLETION TIME/SCHEDULE:** Contract completion time for all work on this project is for 120 calendar days from the Notice to Proceed. Failure to complete the work within the designated time period will result in the assessment of liquidated damages in the amount of \$500.00 per calendar day.

**WORK SCHEDULE:** Within ten (10) days from the Contract Award, the Contractor shall submit a schedule of work for the installation of all the work under this contract to the Owner for approval.

**END OF SPECIAL CONDITIONS**

**0006 – Affidavit of Compliance (E-Verify)**



**STATE OF NORTH CAROLINA**

**COUNTY OF DURHAM**

**AFFIDAVIT OF COMPLIANCE  
with N.C. E-Verify Statutes**

I, \_\_\_\_\_ (hereinafter the "Affiant"), being duly authorized by and on behalf of \_\_\_\_\_ (hereinafter "Contractor") after first being duly sworn hereby swears or affirms as follows:

1. Contractor understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with Article 2 of Chapter 64 of the North Carolina General Statutes; and

2. Contractor understands that an "Employer", as defined in NCGS§64-25(4), is required by law to use E-Verify to verify the work authorization of its employees through E-Verify in accordance with NCGS§64-26(a). The term "Employer" does not include State agencies, counties, municipalities, or other governmental bodies.

3. Contractor is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in the state of North Carolina. (Mark Yes or No)

a. YES \_\_\_\_\_

b. NO \_\_\_\_\_

4. Contractor will ensure compliance with E-Verify to the extent applicable and will ensure compliance by any subcontractors subsequently hired by Contractor to perform work under Contractor's contract with Durham County.

This \_\_\_\_ day of \_\_\_\_\_, 201\_\_.

\_\_\_\_\_  
Signature of Affiant

Print or Type Name: \_\_\_\_\_

State of \_\_\_\_\_

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

Signed and sworn to (or affirmed) before me, this the \_\_\_\_\_

day of \_\_\_\_\_, 201\_\_.

My Commission Expires:

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

||  
||  
|| (Affix Official/Notarial Seal) ||  
||  
||

# 0007 – Bid Form

# BID FORM

## GENERAL CONSTRUCTION CONTRACT

### PROPOSAL TO THE COUNTY OF DURHAM

### REPLACEMENT OF MAIN ROOF AND HVAC UNIT AT THE CRIMINAL JUSTICE RESOURCE CENTER

DURHAM, NORTH CAROLINA  
IFB No. 18-018

BID FROM: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

1. The undersigned BIDDER agrees, if this Bid is accepted, to enter into an agreement with OWNER, in the form included in the Bidding Documents, to perform and furnish the work as specified or indicated in the Bidding Documents for the Bid Price and within the Bid Times indicated in this Bid in accordance with the other terms and conditions of the Contract Documents.
2. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:
  - a) This Bid will remain subject to acceptance for ninety (90) days after the day of Bid opening;
  - b) The Owner has the right to reject this bid;
  - c) Accompanying this proposal is a certified check (or bid bond) for \$\_\_\_\_\_, which represents not less than five (5) percent of the aggregate amount of the proposal. Said check, or the full amount of the bond, shall become the property of County and be retained by the County in the event of withdrawal of the bid after the public opening or should the undersigned fail to execute a contract with the County and give satisfactory surety within fifteen (15) days after the award. Otherwise, said check or bid bond, to be returned to the undersigned. The undersigned agree, if awarded the contract, to deliver satisfactory surety bond in the amount equal to not less than 100 percent (100%) of the contract within fifteen (15) days after Notice of Award;
  - d) BIDDER will sign and submit the Agreement with the Bonds and other documents within 15 days after the date of the Owner's Notice of Award;
  - e) BIDDER has examined copies of all the Bidding Documents.
  - f) BIDDER has visited the site and become familiar with the general and local site conditions;
  - g) BIDDER is familiar with federal, state, and local laws and regulations;
  - h) **BIDDER certifies that no federal excise or state sales taxes have been included in this bid;**
  - i) BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Bidding Documents and additional examinations, investigations, tests, studies and data with the Bidding Documents;

- j) BIDDER certifies that this proposal is made in good faith and without collusion or connection with any other person bidding on the same work, or that any official or employee of the County of Durham will be admitted to any share or part of the contract or any benefits that may arise therefrom if the contract is awarded to this company;
- k) BIDDER acknowledges receipt of the following **Addenda**, which have been considered in the preparation of this Bid:

No: \_\_\_\_\_ Dated: \_\_\_\_\_

No: \_\_\_\_\_ Dated: \_\_\_\_\_

No: \_\_\_\_\_ Dated: \_\_\_\_\_

No: \_\_\_\_\_ Dated: \_\_\_\_\_

Dated in \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

- 3. BIDDER will complete the work in accordance with the Contract Documents for the following price(s):

**SINGLE PRIME CONTRACT:**

**Base Bid Lump-Sum Price** \$ \_\_\_\_\_

In words

**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 the work all in accordance with the contract documents.**

**UNIT PRICE**

- UP-1.** Repair damaged, deteriorated and missing coal tar pitch roof membrane. \$ \_\_\_\_\_ /SF
- UP-2.** Install concrete deck repair. \$ \_\_\_\_\_ /CF
- UP-3.** Prepare metal and provide rust converter, primer and paint for roof-mounted equipment and exposed steel. \$ \_\_\_\_\_ /SF

**Include in the Base Bid the Quantity Allowances specified in Section 01 21 00 of the Project Manual.**

**ALLOWANCES**

- Allowance No. 1.** Repair 300 square feet of existing coal tar pitch membrane to a watertight condition. \$ \_\_\_\_\_
- Allowance No. 2.** Provide two cubic feet of concrete deck repair. \$ \_\_\_\_\_
- Allowance No. 3.** Prepare 30 square feet of metal and provide rust converter, primer and paint for roof-mounted equipment and exposed steel. \$ \_\_\_\_\_

Pursuant to N.C.G.S. 143-128(d), all bidders shall identify on their bid the contractors they have selected for the subdivisions or branches of work for:

- |     |  |       |              |
|-----|--|-------|--------------|
| (1) | Heating, ventilating,<br>and air conditioning; | _____ | Lic. # _____ |
|     |  | _____ | Lic. # _____ |
| (2) | Plumbing                                       | _____ | Lic.# _____  |
|     |  | _____ | Lic. # _____ |
| (3) | Electrical                                     | _____ | Lic. # _____ |
|     |  | _____ | Lic. # _____ |
| (4) | General  | _____ | Lic. # _____ |
|     |  | _____ | Lic. # _____ |

A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor. The terms, conditions, and requirements of each contract between the contractor and a subcontractor performing work under a subdivision or branch of work listed in this subsection shall incorporate by reference the terms, conditions, and requirements of the contract between the contractor and the County.

4. BIDDER agrees that the Work will be substantially complete and ready for final payment in accordance with the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
5. The following documents are attached to and made a condition of the Bid:
  - (a) Required Bid security in the form of \_\_\_\_\_  
\_\_\_\_\_:
6. BIDDER acknowledges the provisions in the General Conditions for Liquidated Damages of \$\_\_\_\_\_ per calendar day for Final Completion.
7. **Bidder has completed and enclosed the documents as required in Item 20 of the Instructions to Bidders.**

SUBMITTED ON \_\_\_\_\_, 20\_\_\_\_\_.

SIGNATURE OF BIDDER:

North Carolina Contractor's License Number \_\_\_\_\_

If an Individual: \_\_\_\_\_

as: \_\_\_\_\_

If a Partnership: \_\_\_\_\_

by: \_\_\_\_\_, partner

If a Corporation: \_\_\_\_\_

(a \_\_\_\_\_ Corporation)

by: \_\_\_\_\_ Attested By: \_\_\_\_\_ (SEAL &

Title: \_\_\_\_\_ Title: \_\_\_\_\_ ATTEST)

Business Address of Bidder: \_\_\_\_\_

\_\_\_\_\_

If Bidder is a joint venture, other party must sign below.

North Carolina Contractor's License Number \_\_\_\_\_

If an Individual: \_\_\_\_\_

\_\_\_\_\_

Doing business as: \_\_\_\_\_

If a Partnership: \_\_\_\_\_

by: \_\_\_\_\_

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

If a Corporation: \_\_\_\_\_

(a \_\_\_\_\_ Corporation)

by: \_\_\_\_\_ Attested By: \_\_\_\_\_ (SEAL &

Title: \_\_\_\_\_ Title: \_\_\_\_\_ ATTEST)

We have the following necessary and suitable equipment in good condition and ready for use on this work.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## **0008 – Special Notice**

## SPECIAL NOTICE

### NORTH CAROLINA SALES TAX

The Committee Substitute for Senate Bill No. 78, passed by 1961 Legislature, requires that contractors pay North Carolina Sales Tax on materials and equipment purchased for construction of municipal work, and further provides that those taxes on certain items are refundable to municipalities under submission of proper evidence by the Owner to the North Carolina Department of Revenue. Reference is made to "Sales and Use Tax Regulation 42".

**BIDDER WILL NOT INCLUDE REFUNDABLE NORTH CAROLINA SALES TAX IN HIS OR HER LUMP-SUM BID.** The Contractor will be reimbursed at the time each monthly estimate is paid for refundable North Carolina Sales Taxes paid during any preceding month, provided he or she submits to the Owner information which will make it possible to show the sales tax as a separate item on the estimate. The tax may be shown at the bottom of the estimate in the following manner.

"Total of refundable N.C. Sales Tax paid on the above estimate amounted to \$\_\_\_\_\_."

To substantiate the payment of the sales tax indicated, the CONTRACTOR MUST IN ADDITION,

Submit a SWORN NOTARIZED statement itemizing the tax, showing each amount and to whom paid, and certifying that the articles purchased were used in the work performed for the Owner. Receipts for these amounts must be included with the estimate. Such receipts should include all taxes paid by the prime contractor and any of his subcontractors.

The above must accompany each estimate for payment and is required by the Owner in making claims for tax refunds.

Every person/business who purchases any taxable tangible personal property, taxable services or certain digital property for storage, use, or consumption in North Carolina (NC) for business use from out-of-state vendors upon which the tax has not been fully paid must register with the NC Department of Revenue and remit the balance of tax due on such purchases based on NC's sales and use tax rate. Out-of-state contractors are required to register for sales and use tax purposes with the State of NC. Registration Application, Form NC-BR, must be completed and mailed to the NC Department of Revenue. Out-of-state contractors should also seek a Certificate of Exemption or Certificate of Resale Form from their state's Department of Revenue office when purchasing taxable tangible personal property from their local state to be stored, used, or consumed in NC provided their state participates in the Streamlined Sales Tax Agreement. Out of state sales tax is not reimbursable by the state of North Carolina. For additional information on North Carolina regarding sales and use tax, please contact the NC Department of Revenue.



## **0009 –Non-Collusion Affidavit**

**NON-COLLUSION AFFIDAVIT**

STATE OF NORTH CAROLINA  
COUNTY OF DURHAM

\_\_\_\_\_, being first duly sworn,  
deposes and says that:

1. He/She is the \_\_\_\_\_ of \_\_\_\_\_, the bidder that has submitted the attached bid;
2. He/She is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such bid;
3. Such bid is genuine and is not a **collusive** or **sham** bid;
4. Neither the said bidder nor any of its officers, partners, owners agents, representatives, employees, parties of interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other bidder, firm or person to submit a **collusive** or **sham** bid in connection with the contract for which the attached bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached bid or of any other bidder, or to fix any overhead, profit or cost element of the bid price of any other bidder or to secure through collusion, conspiracy, connivance or unlawful agreement any advantage against the County of Durham or any person interested in the proposed contract; and
5. The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

\_\_\_\_\_  
TITLE

Subscribed and sworn before me,  
this \_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

(SEAL)

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

My Commission Expires \_\_\_\_\_

## **0010 – Bid Bond/Power of Attorney - Sample**

# S A M P L E

## BID BOND

KNOW ALL MEN BY THESE PRESENTS, THAT WE, \_\_\_\_\_

\_\_\_\_\_ as Principal and \_\_\_\_\_ as Surety, who is duly licensed to act as Surety in North Carolina are held and firmly bound unto the County of Durham, North Carolina as Oblige, 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, or 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, within 10 days after award of same is made to the Principal; execute and deliver to the Obligee the Contract and Contract Bond in the form, amount and with Surety as required and approved by the Obligee, then this obligation shall be null and void, otherwise to remain in full force and effect; and if the Principal fails or refuses to so execute and deliver said contract or furnish the said contract performance bond as required by G.S. 143-129, as amended, the Surety shall, upon demand, forthwith pay to the Obligee the amount set forth in the first paragraph hereof, and upon failure to forthwith make such payment, the Surety shall pay the Obligee an amount equal to the amount of the Bid Bond as set forth in the first paragraph hereof.

IN WITNESS WHEREOF, the undersigned Principal and Surety have caused this bond to be sealed and executed by their duly authorized officers this the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

(Seal) \_\_\_\_\_ (Seal) \_\_\_\_\_  
WITNESS Principal (Owner-Partnership)

ATTEST:

(Seal) \_\_\_\_\_ (Seal) \_\_\_\_\_

**POWER OF ATTORNEY**

(Attach Bond Company Agent's Power of Attorney)

## **0011 – Performance Bond**

# PERFORMANCE BOND

DATE OF EXECUTION: \_\_\_\_\_

NAME OF PRINCIPAL: \_\_\_\_\_  
(CONTRACTOR) \_\_\_\_\_

NAME OF SURETY: \_\_\_\_\_  
\_\_\_\_\_

NAME OF CONTRACTING BODY: COUNTY OF DURHAM

AMOUNT OF BOND: \_\_\_\_\_

CONTRACT NUMBER \_\_\_\_\_

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 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, successors and assigns, 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, numbered 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 as well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements as 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.

\_\_\_\_\_  
Principal (SEAL)

\_\_\_\_\_  
Surety (SEAL)

\_\_\_\_\_  
Name and Title

\_\_\_\_\_  
Name and Title

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

\_\_\_\_\_  
Witness

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

By \_\_\_\_\_  
(Print)

\_\_\_\_\_  
(Signature)

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

Attest: (Corporation)

By \_\_\_\_\_  
(Print)  
\_\_\_\_\_  
(Signature)

Title: \_\_\_\_\_  
(Corp. Sec. Or Assist. Sec.)

\_\_\_\_\_  
(Corporate Seal)

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

Witness:

By: \_\_\_\_\_  
(Print)  
\_\_\_\_\_  
(Signature)

By: \_\_\_\_\_  
(Print)  
\_\_\_\_\_  
(Signature)

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



## **0012 – Payment Bond**

# PAYMENT BOND

DATE OF EXECUTION: \_\_\_\_\_

NAME OF PRINCIPAL: \_\_\_\_\_  
(CONTRACTOR) \_\_\_\_\_

NAME OF SURETY: \_\_\_\_\_  
\_\_\_\_\_

NAME OF CONTRACTING BODY: COUNTY OF DURHAM

AMOUNT OF BOND: \_\_\_\_\_

CONTRACT NUMBER: \_\_\_\_\_

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 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, successors and assigns, 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, numbered as shown above and hereto attached:

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

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

\_\_\_\_\_  
Principal (SEAL)

\_\_\_\_\_  
Surety (SEAL)

\_\_\_\_\_  
Name and Title

\_\_\_\_\_  
Name and Title

Executed in \_\_\_\_\_ counterparts. \_\_\_\_\_  
Name of Principal (Contractor)

\_\_\_\_\_  
Witness By \_\_\_\_\_  
(Print)

\_\_\_\_\_  
(Signature)

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

(Owner, Partner, or Corp.  
Pres. or Vice President)

Attest: (Corporation)

By \_\_\_\_\_  
(Print)

\_\_\_\_\_  
(Signature)

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

(Corp. Sec. Or Assist. Sec.)

\_\_\_\_\_  
(Corporate Seal)

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

Witness:

By: \_\_\_\_\_  
(Print)

By \_\_\_\_\_  
(Print)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Signature)

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

## **0013 – Project Procedure Forms**



**COUNTY OF DURHAM**  
County Engineer  
Durham County Engineering Department  
120 E. Parrish Street / Suite 100  
Durham, NC 27701

## EMERGENCY TELEPHONE NUMBERS

Project Name \_\_\_\_\_ Project No. \_\_\_\_\_

The following are the business and home telephone numbers where project key personnel can be reached at all times. In addition, the emergency telephone numbers of other vital agencies are listed.

	Business	Residence
Contractor's Project Manager .....	_____	_____
Contractor's Superintendent .....	_____	_____
Owner/A&E Project Manager .....	_____	_____
Owner/A&E Resident Project Representative	_____	_____

### OTHER EMERGENCY TELEPHONE NUMBERS

OSHA Representative .....	_____
Fire .....	_____
Ambulance .....	_____
Doctor .....	_____
Hospital .....	_____
Police .....	_____
Gas Company .....	_____
Electric Company .....	_____
Water Company .....	_____
Telephone Company .....	_____
Insurance Carrier .....	_____
Other .....	_____
Other .....	_____

All key personnel should have a copy of this information, and a copy should be posted in each field office in a prominent location.



**COUNTY OF DURHAM**  
County Engineer  
Durham County Engineering Department  
120 E. Parrish Street / Suite 100  
Durham, NC 27701

## REQUEST FOR PAYMENT FOR MATERIALS ON HAND

Project & Location: \_\_\_\_\_ Project No. \_\_\_\_\_ Estimate No. \_\_\_\_\_

Item No.	Material Description	Previous Units Stored	Units Received	Units Installed	Balance Units Stored	Unit Price	Materials Stored Cost

In accordance with the provisions of the General Conditions of the Contract, request is made for payment of materials on hand for the above listed materials.

### AFFIDAVIT

The materials listed above have been purchased exclusively for use on the above-referenced project. The material is separate from the other like materials and is physically identified as our property for use on Contract No. \_\_\_\_\_. The Owner may enter upon the premises for inspection, checking or auditing, or for any other purpose as you consider necessary. It is expressly understood and agreed that this information and Affidavit is furnished to the Owner for the purpose of obtaining payment for the above materials before they are delivered to, or incorporated into, the project described above, and that the storage thereof at the location shown shall not relieve the Contractor of full responsibility for the security and protection of all materials until acceptance by the Owner of the completed project.

Contractor by: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_



**COUNTY OF DURHAM**  
County Engineer  
Durham County Engineering Department  
120 E. Parrish Street / Suite 100  
Durham, NC 27701

**CONSENT OF SURETY  
FOR FINAL PAYMENT**

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

Location \_\_\_\_\_

Project No. \_\_\_\_\_ Contract No. \_\_\_\_\_

Type of Contract \_\_\_\_\_

Amount of Contract \_\_\_\_\_

In accordance with the provisions of the above-named contract between the Owner and the Contractor, the following named surety:

\_\_\_\_\_  
\_\_\_\_\_

on the Payment Bond of the following named Contractor:

\_\_\_\_\_  
\_\_\_\_\_

hereby approves of final payment to the Contractor and further agrees that said final payment to the Contractor shall not relieve the Surety Company named herein of any of its obligations to the following named Owner as set forth in said Surety Company's bond:

\_\_\_\_\_  
\_\_\_\_\_

In Witness Whereof, the Surety Company has hereunto set its hand and seal this \_\_\_\_ day of \_\_\_\_\_ 20\_\_

\_\_\_\_\_  
(Name of Surety Company)

\_\_\_\_\_  
(Signature of Authorized Representative)

(Affix corporate Seal here)

Title \_\_\_\_\_



**COUNTY OF DURHAM**  
County Engineer  
Durham County Engineering Department  
120 E. Parrish Street / Suite 100  
Durham, NC 27701

**CONTRACTOR'S CERTIFICATION OF COMPLETION**

Date \_\_\_\_\_

Project \_\_\_\_\_

Job No. \_\_\_\_\_

Contract No. \_\_\_\_\_

Owner \_\_\_\_\_

Attn: Resident Project Representative

From: \_\_\_\_\_

(Firm or Corporation)

This is to certify that I, \_\_\_\_\_ am an authorized official of

working in the capacity of \_\_\_\_\_

and have been properly authorized by said firm or corporation to sign the following statements pertaining to the subject contract:

I know of my own personal knowledge and do hereby certify that the work of the contract described above has been performed, and materials used and installed in every particular, in accordance with, and in conformity to, the contract, drawings and specifications.

The contract work is now complete in all parts and requirements and ready for final inspection.

I understand that neither the determination by the Engineer-Architect that the work is complete nor the acceptance thereof by the Owner shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the contract documents.

By \_\_\_\_\_

Title \_\_\_\_\_

For \_\_\_\_\_

- Distribution: 1. Project Manager  
2. Field Office  
3. File





**COUNTY OF DURHAM**  
 County Engineer  
 Durham County Engineering Department  
 120 E. Parrish Street / Suite 100  
 Durham, NC 27701

**MONTHLY PAYMENT ESTIMATE SUMMARY**

<b>Project Title</b>			
<b>Contractor</b>			
<b>Estimate No.</b>	<b>Contract Price</b>	<b>Date</b>	
<b>Period</b>	<b>to</b>		
<b>Description</b>			
	<u>Previous</u>	<u>This Month</u>	<u>To Date</u>
Total Contract Items.....	\$ _____	\$ _____	\$ _____
Change Orders Attached.....	\$ _____	\$ _____	\$ _____
Materials On-hand.....	\$ _____	\$ _____	\$ _____
Gross Estimate.....	\$ _____	\$ _____	\$ _____
Less 10% Retainage.....	\$ _____	\$ _____	\$ _____
Less Previous Payments.....	\$ _____	\$ _____	\$ _____
Net Estimate.....	\$ _____	\$ _____	\$ _____
			Approved for Payment..... \$ _____
			N.C. Sales Taxes applying to this estimate and not included in this estimate. .... \$ _____
<b>% Time Elapsed</b>		<b>% Work Completed</b>	
<b>Contract Completion Date</b>			
Notice to Proceed Received by Contractor..... _____			
*Contract Completion Time ..... _____			
Contract Completion Date ..... _____			
<b>COUNTY AUTHORIZATION LIMIT</b> _____			
*As amended by Changed Order No. _____			
<b>Submitted by (Signature &amp; Title)</b>		<b>Administrative Review – Final Payment</b>	
<b>Approved by (Signature &amp; Title)</b>		<b>Approved by - Final Payments</b>	

ANY REQUEST FOR TIME EXTENSION WITH THIS PAYMENT?      YES ( )    NO ( )



**COUNTY OF DURHAM**  
County Engineer  
Durham County Engineering Department  
120 E. Parrish Street / Law Building, 1<sup>st</sup> Floor, Durham, NC 27701

**CHANGE ORDER # \_\_\_\_\_ Date \_\_\_\_\_**

PROJECT TITLE: \_\_\_\_\_

PROJECT NO: \_\_\_\_\_ CONTRACT NO: \_\_\_\_\_ CONTRACT DATE: \_\_\_\_\_

**The following changes are hereby made to the Contract Documents:**

**Justification:**

**CHANGE TO CONTRACT PRICE:**

Original Contract Price	\$ _____
Current Contract Price, as adjusted by previous change orders	\$ _____
The Contract Price due to this change order will remain at	\$ _____
The new Contract Price due to this change will be	\$ _____

**CHANGE TO CONTRACT TIME:**

Original Contract time/date	_____
Contract time as amended by previous change orders	_____
This change order Contract will be (increased) (decreased) by	_____
Revised date of completion of all work under the Contract will be	_____

**RECOMMENDED:**

Project Manager \_\_\_\_\_ Date \_\_\_\_\_

**APPROVALS:**

To be effective this order must be approved by the Owner if it changes the scope or objective of the project, or as may be required under the terms of the General Conditions of the Contract.

_____	_____	<b>County of Durham</b>
Project Engineer	Contractor	Owner
_____	_____	_____
Signature/Title	Signature/Title	Signature/Title
_____	_____	_____
Date	Date	Date

This instrument has been pre-audited in the manner required by the local Government Budget and Fiscal Control Act.

\_\_\_\_\_  
Durham County Chief Financial Officer



**COUNTY OF DURHAM**  
County Engineer  
Durham County Engineering Department  
120 E. Parrish Street / Suite 100  
Durham, NC 27701

**FINAL WAIVER OF LIEN**

To All Whom It May Concern:

WHEREAS, the undersigned has been employed by (A) \_\_\_\_\_  
\_\_\_\_\_ to furnish labor and material for B) \_\_\_\_\_ work,  
under a contract (C) \_\_\_\_\_  
for the improvement of the premises described as (D) \_\_\_\_\_  
\_\_\_\_\_ in  
the \_\_\_\_\_ (City-Village) of \_\_\_\_\_  
County of \_\_\_\_\_, State of \_\_\_\_\_  
of which \_\_\_\_\_ is the  
Owner.

NOW, THEREFORE, this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

For and in consideration of the sum (E) \$ \_\_\_\_\_  
Dollars paid simultaneously herewith, the receipt whereof is hereby acknowledged by the undersigned, the undersigned does hereby waive and release any lien rights to, or claim of lien with respect to and on said above-described premises, and the improvements thereon and on the monies or other considerations due or to become due from the Owner, on account of labor, services, materials, fixtures, apparatus or machinery heretofore or which may hereafter be furnished by the undersigned to or for the above described premises by virtue of said contract.

(F) \_\_\_\_\_ (SEAL)  
(Name of sole ownership, corporation or partnership)

(Affix Corporation  
Seal here)

\_\_\_\_\_ (SEAL)  
(Signature of Authorized Representative)

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

**INSTRUCTIONS FOR FINAL WAIVER**

- (A) Person or Firm with whom you agreed to furnish either labor, or services, or materials, or both.
- (B) Fill in nature and extent of work; strike the word labor or the word materials if not in you contract.
- (C) If you have more than one contract on the same premises, describe the contract by number if available, date and extent of work.
- (D) Furnish an accurate enough description of the improvement and location of the premises so that it can be distinguished from any other property.
- (E) Amount shown should be the amount actually received and equal to total amount of contract as adjusted.
- (F) If waiver is for a corporation, corporate name should be used, corporate seal affixed and title of officer signing waiver should be set forth; if waiver is for a partnership, the partnership name should be used, partner should sign and designate himself as partner.

## **0014 – M/WBE Forms**

**State of North Carolina AFFIDAVIT A - List of the Good Faith Effort**

**COUNTY OF DURHAM**

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

(Name of Bidder)

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

(A minimum of 5 areas must be checked in order to have achieved a "good faith effort")

- 1-Contacted minority businesses that reasonably could have 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-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-Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- 4-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 business.
- 5-Attended prebid meetings scheduled by the public owner.
- 6-Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- 7-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-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-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-Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cashflow demands.

In accordance with GS 143-128.2(d) the undersigned will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon execution of a contract with the Owner. 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: \_\_\_\_\_

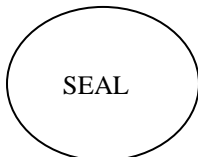
Title: \_\_\_\_\_

State of North Carolina, 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 DURHAM**

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

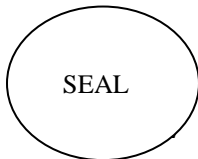
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

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

**ATTACH TO BID - IF YOU MEET THE M/WBE GOAL**

**State of North Carolina AFFIDAVIT C- Portion of the Work to be Performed by Minority Firms**

**COUNTY OF DURHAM**

Durham County Goals for M/WBE Participation in the Procurement of Goods, Services and Construction

Categories	Construction	Architect/ Engineer	Services	Goods	MWBE Availability % <i>(Median Availability)</i>
Black American	14.6	9.8	10.9	2.8	<b>10.4%</b>
Asian American	1.3	3.0	1.1	.43	<b>1.3%</b>
Hispanic American	4.2	1.8	1.1	.43	<b>1.5%</b>
American Indian	.65	.75	1.0	.5	<b>.70%</b>
White Female	13.8	11.0	9.5	7.1	<b>10.3%</b>
<b>Overall MWBE Participation Goal =</b>					<b>25.0%</b>

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

\_\_\_\_\_ (Project Name)

Project ID No. \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

I will expend a minimum of \_\_\_\_\_% of the total dollar amount of the contract with minority businesses enterprises. Work will be subcontracted to the following firms listed below. Attach additional sheets if needed.

Name and Phone Number	*Minority Category	Work Description	Dollar Value	Percentage of Goal

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

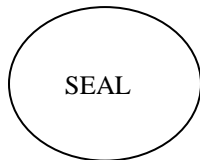
Pursuant to GS 143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

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

**DO NOT SUBMIT WITH THE BID      DO NOT SUBMIT WITH THE BID      DO NOT SUBMIT WITH THE BID**  
**(NOTE: This form is to be submitted only by the apparent lowest responsible, responsive bidder.)**

If you do not meet the M/WBE Goal, the Bidder shall provide the following documentation of his Good Faith Efforts within **72 hours** after notification of being the low bidder.

**State of North Carolina AFFIDAVIT D - Good Faith Efforts**  
**COUNTY OF DURHAM**

Durham County Goals for M/WBE Participation in the Procurement of goods, Services, and Construction

Categories	Construction	Architect/ Engineer	Services	Goods	MWBE Availability % <i>(Median Availability)</i>
Black American	14.6	9.8	10.9	2.8	<b>10.4%</b>
Asian American	1.3	3.0	1.1	.43	<b>1.3%</b>
Hispanic American	4.2	1.8	1.1	.43	<b>1.5%</b>
American Indian	.65	.75	1.0	.5	<b>.70%</b>
White Female	13.8	11.0	9.5	7.1	<b>10.3%</b>
<b>Overall MWBE Participation Goal =</b>					<b>25.0%</b>

Affidavit of \_\_\_\_\_  
(Name of Bidder)

I do certify the attached documentation as true and accurate representation of my good faith efforts.

I will expend a minimum of \_\_\_\_\_% of the total dollar amount of the contract with minority businesses enterprises. Work will be subcontracted to the following firms listed below. Attach additional sheets if needed.

Name and Phone Number	*Minority Category	Work description	Dollar Value	Percentage of Goal

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

Documentation of the Bidder's good faith efforts to meet the goals set forth in the provisions. Examples of documentation include, but are not limited to, the following evidence:

- A. Copies of solicitation 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 to 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.

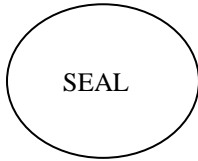
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

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

**APPENDIX E**

**MWBE DOCUMENTATION FOR CONTRACT PAYMENTS**

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

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

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

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

The following is a list of payments to be made to minority business contractors on this project for the above-mentioned period.

<b>Firm Name</b>	<b>*Minority Category</b>	<b>Total Contract Amount</b>	<b>Amount Paid this Period</b>	<b>Total Payment Amount to date</b>	<b>Percentage of Work Completed</b>	<b>Scheduled Start Date</b>	<b>Scheduled End Date</b>

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

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

Name

\_\_\_\_\_

Title

\_\_\_\_\_

Signature

**\*THIS DOCUMENT MUST BE SUBMITTED WITH EACH PAY REQUEST**

## **0015 – Vendor Application/W-9 Form**



## Vendor Application

**IT IS CRITICAL TO THE COUNTY THAT YOU COMPLETE ALL DATA - PLEASE PRINT OR TYPE**

**(A W-9 FORM IS REQUIRED AND MUST BE SUBMITTED WITH THIS FORM)**

1. Vendor Name: \_\_\_\_\_

Do you require a 1099? Yes \_\_\_ No \_\_\_

2. Mailing address for payments: \_\_\_\_\_  
\_\_\_\_\_

3. Mailing address for purchase orders, proposals and bids: \_\_\_\_\_  
\_\_\_\_\_

4. Contact Person \_\_\_\_\_ Phone #: \_\_\_\_\_  
Email: \_\_\_\_\_ Fax #: \_\_\_\_\_

5. In what City and State is your firm licensed? \_\_\_\_\_  
If licensed in NC, indicate County (for tax purposes) \_\_\_\_\_

6. Indicate your firm's organizational type:  
Individual \_\_\_ Partnership \_\_\_ Corporation \_\_\_ Governmental Agency \_\_\_ Other \_\_\_\_\_

7. Is your firm a large business? Yes \_\_\_ No \_\_\_      8. Is your firm a small business? Yes \_\_\_ No \_\_\_

9. Is your firm 51 percent or more owned and operated by a woman? Yes \_\_\_ No \_\_\_  
If yes, with what governmental agencies are you certified? \_\_\_\_\_

10. Is your firm 51 percent or more owned and operated by a minority? Yes \_\_\_ No \_\_\_  
If yes, with what governmental agencies are you certified? \_\_\_\_\_

Identify appropriate minority group:

Black American \_\_\_ Native American \_\_\_ Hispanic \_\_\_ Asian/Pacific \_\_\_ Asian Indian \_\_\_

11. Is your firm incorporated? Yes \_\_\_ No \_\_\_

12. Is your firm a not-for-profit concern? Yes \_\_\_ No \_\_\_

13. Is your firm a handicapped business concern? Yes \_\_\_ No \_\_\_

14. Give a brief description of goods or services your firm provides:  
\_\_\_\_\_  
\_\_\_\_\_

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

Print name: \_\_\_\_\_ Date: \_\_\_\_\_

If you have any questions concerning this form, call Durham County Purchasing Division - (919) 560-0051.

Return to: County of Durham Purchasing Division or Fax to: 919-560-0057  
200 E Main St., 4th Floor  
Durham, NC 27701

## Request for Taxpayer Identification Number and Certification

**Give Form to the  
 requester. Do not  
 send to the IRS.**

<b>Print or type See Specific Instructions on page 2.</b>	Name (as shown on your income tax return)	
	Business name/disregarded entity name, if different from above	
	Check appropriate box for federal tax classification: <input type="checkbox"/> Individual/sole proprietor <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate  <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____  <input type="checkbox"/> Other (see instructions) ▶ _____	Exemptions (see instructions):  Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____
	Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	City, state, and ZIP code	
List account number(s) here (optional)		

### Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Social security number									

**Note.** If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Employer identification number									

### Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below), and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

<b>Sign Here</b>	Signature of U.S. person ▶	Date ▶
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### General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

**Future developments.** The IRS has created a page on IRS.gov for information about Form W-9, at [www.irs.gov/w9](http://www.irs.gov/w9). Information about any future developments affecting Form W-9 (such as legislation enacted after we release it) will be posted on that page.

#### Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, payments made to you in settlement of payment card and third party network transactions, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the

withholding tax on foreign partners' share of effectively connected income, and

4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct.

**Note.** If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

**Definition of a U.S. person.** For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

**Special rules for partnerships.** Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States:

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity,
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust, and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

**Foreign person.** If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

**Nonresident alien who becomes a resident alien.** Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

**Example.** Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

**What is backup withholding?** Persons making certain payments to you must under certain conditions withhold and pay to the IRS a percentage of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

### Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* on page 1.

**What is FATCA reporting?** The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

## Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account, for example, if the grantor of a grantor trust dies.

## Penalties

**Failure to furnish TIN.** If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

**Civil penalty for false information with respect to withholding.** If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

**Criminal penalty for falsifying information.** Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

**Misuse of TINs.** If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

## Specific Instructions

### Name

If you are an individual, you must generally enter the name shown on your income tax return. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first, and then circle, the name of the person or entity whose number you entered in Part I of the form.

**Sole proprietor.** Enter your individual name as shown on your income tax return on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name/disregarded entity name" line.

**Partnership, C Corporation, or S Corporation.** Enter the entity's name on the "Name" line and any business, trade, or "doing business as (DBA) name" on the "Business name/disregarded entity name" line.

**Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulation section 301.7701-2(c)(2)(iii). Enter the owner's name on the "Name" line. The name of the entity entered on the "Name" line should never be a disregarded entity. The name on the "Name" line must be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on the "Name" line. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on the "Business name/disregarded entity name" line. If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

**Note.** Check the appropriate box for the U.S. federal tax classification of the person whose name is entered on the "Name" line (Individual/sole proprietor, Partnership, C Corporation, S Corporation, Trust/estate).

**Limited Liability Company (LLC).** If the person identified on the "Name" line is an LLC, check the "Limited liability company" box only and enter the appropriate code for the U.S. federal tax classification in the space provided. If you are an LLC that is treated as a partnership for U.S. federal tax purposes, enter "P" for partnership. If you are an LLC that has filed a Form 8832 or a Form 2553 to be taxed as a corporation, enter "C" for C corporation or "S" for S corporation, as appropriate. If you are an LLC that is disregarded as an entity separate from its owner under Regulation section 301.7701-3 (except for employment and excise tax), do not check the LLC box unless the owner of the LLC (required to be identified on the "Name" line) is another LLC that is not disregarded for U.S. federal tax purposes. If the LLC is disregarded as an entity separate from its owner, enter the appropriate tax classification of the owner identified on the "Name" line.

**Other entities.** Enter your business name as shown on required U.S. federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name/disregarded entity name" line.

## Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the *Exemptions* box, any code(s) that may apply to you. See *Exempt payee code* and *Exemption from FATCA reporting code* on page 3.

**Exempt payee code.** Generally, individuals (including sole proprietors) are not exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends. Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.

**Note.** If you are exempt from backup withholding, you should still complete this form to avoid possible erroneous backup withholding.

The following codes identify payees that are exempt from backup withholding:

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 <sup>1</sup>	Generally, exempt payees 1 through 5 <sup>2</sup>
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

<sup>1</sup> See Form 1099-MISC, Miscellaneous Income, and its instructions.

<sup>2</sup> However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney, and payments for services paid by a federal executive agency.

**Exemption from FATCA reporting code.** The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements.

- A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)
- B—The United States or any of its agencies or instrumentalities
- C—A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities
- D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Reg. section 1.1472-1(c)(1)(i)
- E—A corporation that is a member of the same expanded affiliated group as a corporation described in Reg. section 1.1472-1(c)(1)(i)
- F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

- G—A real estate investment trust
- H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940
- I—A common trust fund as defined in section 584(a)
- J—A bank as defined in section 581
- K—A broker
- L—A trust exempt from tax under section 664 or described in section 4947(a)(1)
- M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

**Part I. Taxpayer Identification Number (TIN)**

**Enter your TIN in the appropriate box.** If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on page 2), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

**Note.** See the chart on page 4 for further clarification of name and TIN combinations.

**How to get a TIN.** If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local Social Security Administration office or get this form online at [www.ssa.gov](http://www.ssa.gov). You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at [www.irs.gov/businesses](http://www.irs.gov/businesses) and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting [IRS.gov](http://IRS.gov) or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

**Note.** Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

**Caution:** A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

**Part II. Certification**

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, or 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on the "Name" line must sign. Exempt payees, see *Exempt payee code* earlier.

**Signature requirements.** Complete the certification as indicated in items 1 through 5 below.

**1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.** You must give your correct TIN, but you do not have to sign the certification.

**2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.** You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

**3. Real estate transactions.** You must sign the certification. You may cross out item 2 of the certification.

**4. Other payments.** You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

**5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions.** You must give your correct TIN, but you do not have to sign the certification.

**What Name and Number To Give the Requester**

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account <sup>1</sup>
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor <sup>2</sup>
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee <sup>1</sup> The actual owner <sup>1</sup>
5. Sole proprietorship or disregarded entity owned by an individual	The owner <sup>3</sup>
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulation section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	Give name and EIN of:
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity <sup>4</sup>
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulation section 1.671-4(b)(2)(i)(B))	The trust

<sup>1</sup> List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

<sup>2</sup> Circle the minor's name and furnish the minor's SSN.

<sup>3</sup> You must show your individual name and you may also enter your business or "DBA" name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

<sup>4</sup> List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 1.

\*Note. Grantor also must provide a Form W-9 to trustee of trust.

**Note.** If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

**Secure Your Tax Records from Identity Theft**

Identity theft occurs when someone uses your personal information such as your name, social security number (SSN), or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

**Protect yourself from suspicious emails or phishing schemes.** Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to [phishing@irs.gov](mailto:phishing@irs.gov). You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: [spam@uce.gov](mailto:spam@uce.gov) or contact them at [www.ftc.gov/idtheft](http://www.ftc.gov/idtheft) or 1-877-IDTHEFT (1-877-438-4338).

Visit [IRS.gov](http://IRS.gov) to learn more about identity theft and how to reduce your risk.

**Privacy Act Notice**

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.



## **0016 – No Bid Reply Form**

**NO BID REPLY FORM**

TO: Durham County  
Purchasing Division  
200 East Main Street, 4th Floor  
Durham, NC 27701

IFB No. 18-018

BID TITLE: Replacement of the Main Roof and HVAC Unit at the Criminal Justice Resource Center

To assist us in obtaining good competition on our Invitation for Bids, we ask that each firm that has received an invitation, but does not wish to submit a Bid, state their reason(s) below and return to this office. This information will not preclude receipt of future invitations unless you request removal from the Bidders' List by so indicating below, or do not return this form or bona fide Bid.

Unfortunately, we must offer a "No Bid" at this time because:

- \_\_\_\_\_ 1. We do not wish to participate in the bid process.
- \_\_\_\_\_ 2. We do not wish to submit a Bid under the terms and conditions of the Invitation for Bids document. Our objections are:  
\_\_\_\_\_  
\_\_\_\_\_
- \_\_\_\_\_ 3. We do not feel we can be competitive.
- \_\_\_\_\_ 4. We cannot submit a Bid because of the marketing or franchising policies of the manufacturing company.
- \_\_\_\_\_ 5. We do not wish to sell to the Durham County. Our objections are:  
\_\_\_\_\_  
\_\_\_\_\_
- \_\_\_\_\_ 6. We do not sell the items/services on which Bids are requested.
- \_\_\_\_\_ 7. Other: \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
FIRM NAME

\_\_\_\_\_  
DATE

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
PHONE

\_\_\_\_\_ We wish to remain on the Bidders' List.

\_\_\_\_\_ We wish to be deleted from the Bidders' List.

## **0017 – Contract for Construction Between Owner and Contractor**

**NORTH CAROLINA  
DURHAM COUNTY**

**SAMPLE**  
**CONTRACT for CONSTRUCTION**  
**BETWEEN OWNER and CONTRACTOR**

**This Contract for Construction** is made, and entered into this the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the **COUNTY OF DURHAM**, a political subdivision of the State of North Carolina, (hereinafter “**OWNER**”), and \_\_\_\_\_, EID# \_\_\_\_\_ (hereinafter “**CONTRACTOR**”), whose principal place of business is:

\_\_\_\_\_.

The Project: \_\_\_\_\_  
Name and Location: \_\_\_\_\_  
\_\_\_\_\_

The Designer is: \_\_\_\_\_  
\_\_\_\_\_

1. CONTRACT DOCUMENTS. The “Contract Documents” consist of this Contract for Construction, General Conditions, Bid Proposal Package No. \_\_\_\_\_ entitled \_\_\_\_\_, Contractor Bid Proposal dated \_\_\_\_\_, Addenda issued prior to execution of this Agreement and listed below, and any Modifications executed by the parties after execution of this Contract. The Contract Documents form the Contract and are fully a part of the Contract as if attached to this Contract or repeated herein. The Contract represents the entire and integrated agreement between the Owner and Contractor hereto and supersedes any and all prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents and other than Modifications, appears in Article 15, herein.

Owner and Contractor agree that should the Contractor utilize the services of a subcontractor for any Work under this Contract, the subcontractor shall be required to comply with all terms and conditions of this Contract and any and all Contract Documents entered into between the Owner and Contractor and any of its contractors or subcontractors shall so require of their subcontractors.

2. WORK. Contractor shall execute all of the Work described collectively in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.
3. DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION.

3.1 This Contract shall commence on the date first written above (hereinafter “Commencement Date”). The Contractor shall notify the Owner in writing not less than five days before commencing the Work.

3.2 The Contractor shall achieve Substantial Completion of the entire Work no later than the time established in the Contract Documents; subject to adjustments of the Contract Time as provided in the Contract Documents. In view of the difficulty of estimating damages to the Owner by reason of the failure of the Contractor to complete the work herein proposed within the time

limit herein proposed, or within such further time as same may be extended, as provided for, proposed, Owner shall be and hereby is authorized to deduct and retain out of the moneys which may be due or become due to Contractor the sum of One Thousand Dollars (\$1,000.00) per day for each and every calendar day that the work may be incomplete beyond the time limit fixed for its completion, or as same may have been extended, which sum per day is hereby agreed upon, fixed and determined by the parties hereto as the ascertained and liquidated damages that the Owner will suffer by reason of such default. The above sum shall be held to include the additional expense to the Owner for loss of interest or investment, for the employment of architects, engineers, inspectors, and other employees, together with their expenses, and all other damages to the Owner by reason of such delay.

4. CONTRACT SUM AND PAYMENT

4.1 Contractor shall receive from Owner a sum not to exceed \_\_\_\_\_ Dollars (\$ \_\_\_\_\_ ), as full compensation for the provision of construction services provided under this Contract, subject to additions and deductions as provided in the Contract Documents. Owner agrees to pay for services, satisfactorily performed, in accordance with the Contract Documents. Unless otherwise specified, Contractor shall submit an Application for Payment in the manner described in Article 9, of the General Conditions. Payment will be processed promptly upon receipt and approval of the Application by Owner.

4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

\_\_\_\_\_  
\_\_\_\_\_

4.3 Unit prices, if any, are as follows:

\_\_\_\_\_  
\_\_\_\_\_

5. PROGRESS PAYMENTS. Based upon Applications for Payment submitted to the Designer by the Contractor and Certificates for Payment issued by the Designer, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided in section 9.3 of the General Conditions.

6. FINAL PAYMENT. Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when (1) the Contract has been fully performed by the Contractor and all requirements imposed by Paragraphs 9.3 and 9.11 of the General Conditions have been satisfied except for those requirements set forth in Paragraphs 11.2 and 11.3 of the General Conditions and any other requirements which necessarily survive final payment; and (2) a final Certificate for Payment has been issued by the Designer; such final payment shall be made by the Owner not more than 30 days after the issuance of the Designer's final Certificate for Payment.

7. INDEMNIFICATION. To the fullest extent permitted by laws and regulations, CONTRACTOR shall indemnify and hold harmless the OWNER and its officials, agents, and employees from and against all claims, damages, losses, and expenses, direct, indirect, or consequential (including but not limited to fees and charges of engineers or architects, attorneys, and other professionals and

costs related to court action or mediation) arising out of or resulting from CONTRACTOR's performance of this Contract or the actions of the CONTRACTOR or its officials, employees, or subcontractors under this Contract or under contracts entered into by the CONTRACTOR in connection with this Contract. This indemnification shall survive the termination of this Contract. In claims against any person or entity indemnified under this provision by an employee of the CONTRACTOR, a subcontractor, an employee of a subcontractor, or an agent of the CONTRACTOR or a subcontractor, the indemnification obligation under this provision shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or a subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

8. COMPLIANCE WITH LAWS. CONTRACTOR shall abide by all statutes, rules, regulations, laws, and executive orders Federal, State and Local as they relate to, but are not limited to, (i) construction in general, (ii) payment of employees, subcontractors and agents, (iii) the Fair Labor Standards Act and (iv) the Wage and Hour Division. In the event CONTRACTOR is determined by the final order of a court or appropriate agency to be in violation of any Federal, State or Local statute, rule, regulation, law or executive order or this provision, this Contract may be canceled, terminated or suspended in whole or in part by COUNTY and CONTRACTOR may be declared ineligible for further COUNTY contracts.

9. NOTICES. All notices which may be required by this contract or any rule of law shall be effective when received by certified mail sent to the following addresses:

FOR: COUNTY OF DURHAM  
PURCHASING DEPARTMENT  
4TH FLOOR, 200 EAST MAIN STREET  
DURHAM, NORTH CAROLINA, 27701

FOR: CONTRACTOR  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. NON-DISCRIMINATION. Contractor shall not discriminate against any employee or applicant for employment because of age, sex, race, creed, national origin, or disability. Contractor shall take affirmative action to ensure that applicants are employed and that employees are treated fairly and legally during employment with regard to their age, sex, race, creed, national origin, or disability. In the event Contractor is determined by the final order of an appropriate agency or court to be in violation of any non-discrimination provision of federal, state or local law or this provision, this Contract may be canceled, terminated or suspended in whole or in part by Owner, and Contractor may be declared ineligible for further Owner contracts.

11. HEALTH AND SAFETY. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs required by OSHA and all other regulatory agencies while providing services under this contract.

12. NON-ASSIGNMENT. This Contract is not assignable by either party, by operation of law or otherwise.

13. **MODIFICATION.** This Contract may be modified only by a written agreement executed by both parties hereto.
14. **TERMINATION OR SUSPENSION.** This Contract may be terminated by the Owner or the Contractor as provided in Article 13 of the General Conditions. The Work may be suspended by the Owner as provided in Paragraph 13.3 of the General Conditions.
15. **INSURANCE.** CONTRACTOR shall procure and maintain for the duration of the contract the following insurance coverage from an insurance company(s) possessing a rating of A-VI or higher from the A.M. Best Company or an equivalent rating service. All of the policies required of the CONTRACTOR shall contain a waiver of subrogation provision to waive all rights of recovery under subrogation or otherwise against the COUNTY. CONTRACTOR shall advise the COUNTY of any cancellation, non-renewal, or material change in any policy within ten (10) days of notification of such action and provide updated certificates of insurance evidencing renewals within fifteen (15) days of expiration. All of the policies required of the CONTRACTOR shall be primary and the CONTRACTOR agrees that any insurance or self-funded liability programs maintained by the COUNTY shall be non-contributing with respect to the CONTRACTOR's insurance.

**15.1 Commercial General Liability**

Shall be a limit of not less than **\$2,000,000** per occurrence and **\$5,000,000** aggregate. Coverage must be in a form providing coverage not less than the standard Insurance Services Office Form CG 00 01 and include products and completed operations, property damage, bodily injury, and personal & advertising injury. The products-completed operations coverage shall be provided for a minimum of six (6) years following final acceptance of the work.

**15.2 Commercial Automobile Liability**

Shall be a limit of not less than **\$2,000,000** per occurrence for any (Code 1) vehicle.

**15.3 Worker's Compensation and Employers Liability**

Shall be at North Carolina statutory limits. CONTRACTOR shall satisfy all compulsory requirements relating to workers compensation in any jurisdiction in which benefits may be claimed. Employers Liability shall be a limit of not less than **\$1,000,000** per accident for bodily injury or disease.

**15.4 Professional Liability**

Shall be a limited of not less than **\$5,000,000** per occurrence or claim, and **\$5,000,000** aggregate. There shall be an extended reporting period of not less than six (6) years.

**15.5 Builders Risk**

Shall be at a limit **equal to the completed value of the project** with no coinsurance penalty provisions utilizing an "All Risk" (Special Perils) coverage form.

**15.6 CONTRACTORS' Pollution Legal Liability**

Shall be at a limit not less than **\$5,000,000** per occurrence or claim and **\$5,000,000** aggregate.

**15.7 "All Risk" Property (CONTRACTOR'S Property)**

Replacement cost coverage under an "All Risk" policy for any of the CONTRACTOR's real or personal property. Policy must include coverage for equipment owned, leased, rented, and borrowed, whether such equipment is located at a job site or "in transit."

Insurance coverage shall be obtained from companies that are authorized to provide such coverage and that are authorized by the Commissioner of Insurance to do business in North Carolina. CONTRACTOR, upon request, shall furnish OWNER with complete copies of insurance policies required. By requiring insurance herein, the OWNER does not represent that coverage and limits will necessarily be adequate to protect CONTRACTOR, and such coverage and limits shall not be deemed as a limitation on CONTRACTOR's liability under the indemnities granted to the OWNER in this Contract. Any umbrella or excess liability coverage must be at least as broad as the primary coverage and contain all coverage provisions that are required of the primary coverage.

The failure of the COUNTY at any time to enforce the insurance provisions, to demand such certificates of insurance, or to identify a deficiency shall not constitute a waiver of those provisions, nor reduce the obligations of the CONTRACTOR to maintain such insurance or to meet its obligations under the indemnification provisions.

The CONTRACTOR shall provide the COUNTY a valid certificate of insurance, in advance of the performance of any work, exhibiting coverage as required by the COUNTY. Providing and maintaining adequate insurance coverage is a material obligation of the CONTRACTOR. CONTRACTOR shall require its subcontractors to maintain insurance coverage required herein or cover the subcontractors' under the CONTRACTOR's policies. The Certificate of Insurance shall be provided on the industry standard form (ACORD 25).

Notwithstanding the foregoing, nothing contained in this section shall be deemed to constitute a waiver of the governmental immunity of the County of Durham, which immunity is hereby reserved to the County of Durham.

16. PERFORMANCE BOND AND PAYMENT BOND. The Contractor shall furnish bonds covering The faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or required by North Carolina law. Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

17. ENUMERATION OF CONTRACT DOCUMENTS

17.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated as follows:

- 1) This executed Contract for Construction between Owner and Contractor.
- 2) The General Conditions of the Contract for Construction. Where reference is made in this Contract to a provision of the General Conditions or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.
- 3) The Supplementary and other Conditions of the Contract are those contained in the



Project Manual dated \_\_\_\_\_, and are as follows:

<u>Document</u>	<u>Title</u>	<u>Pages</u>

- 4) The Specifications are those contained in the Project Manual dated as in Paragraph 16.1(.3) above, and are as follows:

<u>Section</u>	<u>Title</u>	<u>Pages</u>

- 5) The Drawings are as follows, and are dated \_\_\_\_\_, unless a different date is shown below:

<u>Number</u>
<u>Title</u>
<u>Date</u>

- 6) The Addenda, if any, are as follows:

Addendum No. ____	Dated: _____	Addendum No. ____	Dated: _____
Addendum No. ____	Dated: _____	Addendum No. ____	Dated: _____
Addendum No. ____	Dated: _____	Addendum No. ____	Dated: _____

- 7) Other documents, if any, forming part of the Contract Documents are as follows:

Invitation to Bid.  
Instruction to Bidders

18. **ENTIRE CONTRACT.** This Contract and the Contract Documents described herein sets forth the entire agreement between the parties and supersedes any and all other agreements on this subject between the parties.

19. **E-VERIFY.** As a condition of payment for services rendered under this agreement, Contractor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further, if Contractor provides the services to the Owner utilizing a subcontractor, Contractor shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes as well. Contractor shall verify, by affidavit, compliance of the terms of this section upon request by the Owner.

20. **EMPLOYMENT ADVERTISING REQUIREMENTS.** CONTRACTOR shall post local job openings, in connection with this contract, with the City of Durham's Office of Economic and Workforce Development, the North Carolina Department of Commerce-Division of Employment Services (formerly ESC, Employment Security Commission) and with the Durham County Department of Social Services throughout the term of this Agreement; provided that the foregoing requirement does not limit CONTRACTOR'S ability to advertise and/or otherwise post job openings with other organizations or media outlets.

This Agreement is entered into as of the day and year first written above and is executed in at least three original copies of which one is to be delivered to the Contractor, one to the Designer for use in the administration of the Contract, and the remainder to the Owner.

COUNTY OF DURHAM

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

By \_\_\_\_\_  
County Manager

\_\_\_\_\_  
Durham County Chief Financial Officer

CONTRACTOR

ATTEST:

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

Secretary

Print Name/Title: \_\_\_\_\_

\_\_\_\_\_

STATE OF NORTH CAROLINA  
COUNTY OF \_\_\_\_\_

I, a Notary Public in and for the aforesaid County and State, do hereby certify that \_\_\_\_\_ personally appeared before me this day and acknowledged that he is of \_\_\_\_\_ a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its \_\_\_\_\_, sealed with its corporate seal and attested by \_\_\_\_\_ as its \_\_\_\_\_.

Witness my hand and notarial seal this \_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public  
My commission expires: \_\_\_\_\_

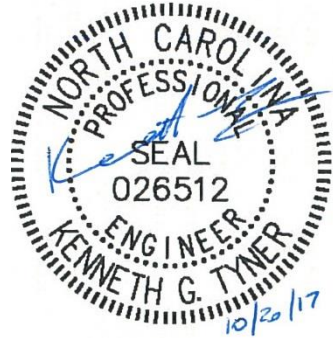
(SEAL)

## **0018 – Technical Specifications**

**SECTION 00 01 07**

**SEALS PAGE**

**PROFESSIONAL ENGINEER**



**REGISTERED ROOF CONSULTANT**

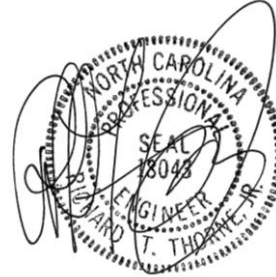


**END OF SECTION 00 01 07**

**SECTION 00 01 07**

**SEALS PAGE**

**MECHANICAL ENGINEER**



**END OF SECTION 00 01 07**



**COUNTY OF DURHAM**

**REPLACEMENT OF MAIN ROOF AND HVAC UNIT  
AT  
CRIMINAL JUSTICE RESOURCE CENTER  
REI PROJECT NO. 016RAL-100**

**TECHNICAL SPECIFICATIONS**

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01 11 00	Summary of Work .....	01 11 00
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01 42 00	References .....	01 42 00
01 50 00	Temporary Facilities and Controls .....	01 50 00
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01 77 00	Closeout Procedures .....	01 77 00

**DIVISION 3 CONCRETE**

03 52 16.13	Lightweight Cellular Insulating Concrete.....	03 52 16.13
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**DIVISION 06 WOOD, PLASTIC, AND COMPOSITES**

06 10 00	Rough Carpentry.....	06 10 00
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**DIVISION 07 THERMAL AND MOISTURE PROTECTION**

07 01 50	Preparation for Reroofing .....	07 01 50
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07 62 00	Sheet Metal Flashing and Trim.....	07 62 00
07 92 00	Elastomeric Joint Sealants .....	07 92 00

**DIVISION 23 HEATING VENTILATING AND AIR CONDITIONING**

23 01 00	Basic Mechanical Materials and Methods .....	23 01 00
23 07 13	Duct Insulation .....	23 07 13
23 31 13	Metal Ducts .....	23 31 13
23 33 00	Duct Accessories .....	23 33 00
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**DIVISION 26 ELECTRICAL**

26 01 00	Basic Electrical Materials and Methods .....	26 01 00
26 05 33	Raceways and Boxes for Electrical Systems .....	26 05 33

**CONTRACT DRAWINGS**

C1	Appendix B Building Code Summary, Location Map, Vicinity Map, Staging Map and Drawing Index
R1	Roof Plan and Gas Lines and Equipment Supports Above the Roof Level
D1	Roof Details
ME1	Mechanical Plans
ME2	Mechanical Plans

This specification is developed solely for this project. Client shall hold REI harmless for any errors, omissions or liability associated with reuse.

**END OF SECTION 00 01 10**

**SECTION 00 63 25**

**SUBSTITUTION REQUEST FORM**

Project \_\_\_\_\_  
Date: \_\_\_\_\_ Bid Opening Date: \_\_\_\_\_  
Product and / or Fabrication Method: \_\_\_\_\_  
Specification Section: \_\_\_\_\_  
Related Drawings: \_\_\_\_\_

Criteria or Specified Product	Included
Product Data	_____
Fabrication Drawings	_____
Samples Where Applicable	_____
List of changes or Modifications Needed to Work as Noted in Spec	_____

Criteria or Specified Product	Included
Product Data	_____
Fabrication Drawings	_____
Samples Where Applicable	_____
List of changes or Modifications Needed to Work as Noted in Spec	_____

The substitution proposed is equal-to or better in every respect to that required by the Contract Documents, and it will perform equal or superior to product specified in the application indicated. The Contractor waives right to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.

Signed: \_\_\_\_\_

**END OF SECTION 00 63 25**



SECTION 00 65 37

CONTRACTOR'S TWO-YEAR WARRANTY

Know all men by these presents, that we, (Contractor) \_\_\_\_\_, having installed roofing systems, flashings and sheet metal on Criminal Justice Resource Center under contract between Durham County (Owner) and Contractor, warrant to the Owner with respect to said work that for a period of two (2) years from date of substantial completion, the work shall be absolutely watertight and free from any and all leaks, provided however the following are excluded from this Warranty:

- a. Defects or failures resulting from abuse by the Owner.
b. Defect in design involving failure of (1) structural frame, (2) load bearing walls, and (3) foundations.
c. Damages caused by fire, tornado, hail, hurricane, acts of God, wars, vandalism, riots or civil commotion.

We, Contractor, agree that should any leaks occur in the work we will perform emergency repairs within 24 hours' notice and perform permanent repairs within a reasonable time in a manner to restore the work to a watertight condition by methods compatible to the system and acceptable under industry standards and general practice, all at no expense to the Owner.

We, Contractor, further agree that for a period of two (2) years from date of substantial completion referred to above, we will make repairs at no expense to the Owner to any defects which may develop in the work including but not limited to wrinkles, open laps, ridges, splits and loose flashing in a manner compatible to the system and acceptable under industry standards and general practice as established by the Engineer.

Date of Substantial Completion: \_\_\_\_\_

IN WITNESS WHEREOF, we have caused this instrument to be duly executed this \_\_\_\_\_, 20\_\_\_\_

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

Notary Public section containing fields for State of North Carolina, County, Notary Public name, date, and official seal.

END OF SECTION 00 65 37

**SECTION 00 73 30**

**ASBESTOS FREE WARRANTY**

Owner: Durham County  
Project Name: Criminal Justice Resource Center  
Project Address: 326 East Main Street, Durham, North Carolina  
Project Manual Date: September 21, 2017

Date of Substantial Completion: \_\_\_\_\_

Know all men by these present that we, \_\_\_\_\_  
(Contractor, Subcontractor, Material Supplier or Equipment Manufacturer)

having furnished labor, materials, equipment and/or supplies; removed existing roof system; installed new roof system and/or miscellaneous roof system components; from, to and/or on the above referenced Project under contract between the Owner and Contractor, warrant to Owner with respect to said work that no materials containing asbestos fibers were incorporated into the work, and that, to our knowledge and belief, no materials containing asbestos remain in or are covered by the work.

Exceptions: \_\_\_\_\_  
If there are no exceptions, state "No Exceptions" here.

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

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

<p>North Carolina _____ County</p> <p>I, _____, a Notary Public for _____ County, North Carolina, do hereby certify that _____ personally appeared before me this day and acknowledged the due execution of the foregoing instrument.</p> <p>Witness my hand and official seal, this _____ day of _____, 20_____.</p> <p>_____ Notary Public</p> <p>(OFFICIAL SEAL)</p> <p>My commission expires _____, 20_____.</p>
--

**END OF SECTION 00 73 30**

**SECTION 00 73 31**

**ROOF MANUFACTURER'S ACKNOWLEDGMENT**

Owner: Durham County

Project Name: Criminal Justice Resource Center-Roof Replacement and Replacement of HVAC Unit

Project Address: 326 East Main Street, Durham, NC

Roofing Contractor: \_\_\_\_\_

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

Telephone: \_\_\_\_\_

This is to advise the Owner that having thoroughly reviewed the Specifications and Drawings contained within the Project Manual dated September 21, 2017 for the above-titled project, we acknowledge that the roof system(s) and flashing system(s) specified are suitable for the issuance of the specified Manufacturer's warranty on this project and have been tested and approved for the wind uplift pressures outlined in the project specifications. Having reviewed the project requirements in detail, the Manufacturer will provide a written response of exceptions to the Engineer through the contractor prior to five (5) days of the bid due date or as otherwise outlined in the Instructions to Bidders, if conflicts exist between the Manufacturer's warranty requirements and the above listed documents. Exceptions not submitted accordingly are subject to rejection. The manufacturer also certifies that the installer is approved, authorized, or licensed by the manufacturer to install the specified roof system and is eligible to provide the specified manufacturer's warranty. The manufacturer will comply with the specified requirements for on-site technical support.

\_\_\_\_\_ is hereby designated as our Liaison on this project.  
(Print or type name of Liaison)

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Roof Manufacturer's Company Name

\_\_\_\_\_  
Roof Manufacturer Representative's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Roof Manufacturer Representative's Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Roof Manufacturer's Address

\_\_\_\_\_  
Telephone

**END OF SECTION 00 73 31**

## SECTION 01 11 00

### SUMMARY OF WORK

#### PART 1 GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.
1. Division 3, Section "Lightweight Cellular Insulating Concrete".
  2. Division 6, Section "Rough Carpentry".
  3. Division 7, Section "Preparation for Reroofing".
  4. Division 7, Section "Thermoplastic Single-Ply Roofing".
  5. Division 7, Section "Sheet Metal Flashing and Trim".
  6. Division 7, Section "Elastomeric Joint Sealants".
  7. Division 23, Section "Basic Mechanical Materials and Methods".
  8. Division 23, Section "Duct Insulation".
  9. Division 23, Section "Metal Ducts".
  10. Division 23, Section "Duct Accessories".
  11. Division 23, Section "Rooftop Air Conditioners".
  12. Division 26, Section "Basic Electrical Materials and Methods".
  13. Division 26, Section "Raceways and Boxes for Electrical Systems".

##### 1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Criminal Justice Resource Center.
- B. Project Location: 326 East Main Street, Durham, North Carolina.
- C. Owner: Durham County.
- D. Engineer: The Contract Documents, dated September 21, 2017, were prepared by REI Engineers.
- E. This work includes the provision of all labor, material, equipment, supervision and administration to integrate the work outlined in this project manual into the total building system such that no leakage into the system occurs. In general, the scope of work in the **Base Bid** will include:
1. Main Roof:
    - a. Remove and dispose of all sprayed on polyurethane foam.
    - b. Remove and dispose of membrane flashings and sheet metal down to the existing coal tar pitch built-up roof membrane and repair existing coal tar pitch built-up roof membrane as needed to be watertight.
    - c. Provide a tapered lightweight insulating cellular concrete system and adhere a felt-backed PVC single-ply membrane.

- d. Provide new sheet metal flashings and accessories to provide a complete, watertight, 20-year warrantable roof assembly.
- e. Remove and dispose of abandoned supports and penetrations where indicated on the Drawings.
- f. Provide modified and new equipment supports where indicated on the Drawings.
- g. Install concrete repair mortar at top of chimney and install bird deterrent spike system.
- h. Prepare and seal all openings in the concrete parapet wall with specified sealant.

2. HVAC Unit:

- a. The building will stay operational.
- b. First phase is to remove the existing roof top unit, set the new roof top unit, make temporary connection to the existing ductwork, and restart-up the unit. This will be executed on a weekend.
- c. Second phase is to prefabricate the new ductwork, then install each section over a weekend.

F. Asbestos Containing Roofing Materials (ACRM):

- 1. It is the intention of these specifications that no asbestos bearing materials be incorporated into the work. In the event the contractor should determine unanticipated asbestos bearing materials to be present in the existing building components, Contractor is to stop all work in the affected area, notify the Engineer and Owner, and provide temporary protection as required. Costs incurred, if any, due to the presence of hidden and/or unanticipated asbestos bearing materials will be authorized by Change Order to this contract.

G. The contractor is responsible for all electrical, plumbing, mechanical, and other related trade work necessary to facilitate project operations. Contractor is responsible for re-locating any and all conduit, HVAC equipment, curbs, and/or plumbing necessary to comply with the requirements of these documents. All work shall conform to the requirements of the current Building Code approved in the State of the project location.

H. General requirements and specific recommendations of the material manufacturers are included as part of these specifications. The manufacturers' specifications are the minimum standards required for the completed systems. Specific items listed herein may improve the standards required by the manufacturers and will take precedence where their compliance will not affect the manufacturers' guarantee or warranty provisions.

**1.03 CONTRACT**

A. Project will be constructed under a single prime general construction contract.

**1.04 SITE INVESTIGATION**

- A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, ground water table or similar physical conditions at the site, the conformation and condition of the ground, the character, quality and quantity of surface and subsurface materials to be encountered, the character of equipment and facilities needed prior to and during the prosecution of the Work and all other matters which can in any way affect the Work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with all the available information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work. Field measurements shall be taken at the site by the Contractor to verify all data and conditions affected by the Work.

**1.05 SPECIFICATION FORMATS AND CONVENTIONS**

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC's "MasterFormat" numbering system.
  - 1. Section Identification: The Specifications use section numbers and titles to cross-reference Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the Table of Contents at the beginning of the Project Manual.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION 01 11 00**

**SECTION 01 21 29**

**QUANTITY ALLOWANCES**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. This Section includes administrative and procedural requirements governing allowances.

**1.02 ALLOWANCE PROCEDURES**

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

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.01 UNIT PRICE ALLOWANCES SCHEDULE**

- A. Include the following unit price allowances in the Contract Sum:
  - 1. Base Bid:
    - a. Allowance No. 1: Repair 300 square feet of existing coal tar pitch membrane to a watertight condition. Refer to Section 07 01 50, Preparation for Reroofing.
    - b. Allowance No. 2: Provide two cubic feet of concrete deck and clay brick masonry cap repair. Refer to Section 07 01 50, Preparation for Reroofing.
    - c. Allowance No. 3: Provide 30 square feet of rust converter, primer and paint for roof-mounted equipment and exposed steel. Refer to Section 07 01 50, Preparation for Reroofing.

**END OF SECTION 01 21 29**

## **SECTION 01 22 00**

### **UNIT PRICES**

#### **PART 1 GENERAL**

##### **1.01 DESCRIPTION**

- A. This Section includes administrative and procedural requirements for unit prices.

##### **1.02 DEFINITIONS**

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

##### **1.03 PROCEDURES**

- A. Include in unit prices all necessary material, plus cost for removals, delivery, installation, insurance, taxes, overhead and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Maintain a daily log showing dates, location and exact quantities of unit price work.
- D. List of Unit Prices: A list of unit prices is included in Part 3. Sections referenced in the schedule contain requirements for materials described under each unit price.

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

#### **PART 3 EXECUTION**

##### **3.01 LIST OF UNIT PRICES**

- A. Unit Price No. 1 – Coal tar pitch roof repair:
  - 1. Description: Repair damaged, deteriorated and missing coal tar pitch roof membrane according to Section 07 01 00, Reroofing Preparation.
  - 2. Unit of Measurement: Per Square Foot (SF).
- B. Unit Price No. 2 – Concrete deck repair:
  - 1. Description: Install concrete deck repair according to Section 07 01 50, Preparation for Reroofing.
  - 2. Unit of Measurement: Per Cubic Foot (CF).



- C. Unit Price No. 3 – Painting of roof-mounted equipment and exposed steel:
1. Description: Prepare metal and provide rust converter, primer and paint for roof-mounted equipment and exposed steel.
  2. Unit of Measurement: Per Square Foot (S).

**END OF SECTION 01 22 00**

## SECTION 01 25 00

### PRODUCT SUBSTITUTIONS

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions prior to the Owner's receipt of bids.

##### **1.02 RELATED DOCUMENTS**

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

##### **1.03 DEFINITIONS**

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, and equipment, of construction required by Contract Documents proposed by the Contractor are considered requests for "substitutions". The following are not considered substitutions:
  - 1. Substitutions that are requested by Bidders beyond the seven (7) calendar days prior to bid opening submittal period.
  - 2. Revisions to Contract Documents requested by the Owner or Engineer.
  - 3. Specified options of products and construction methods included in Contract Documents.
  - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

##### **1.04 SUBMITTALS – PRIOR TO BID**

- A. Substitution Request Submittal: Written requests for substitution from prime bidders will be considered if received by the Engineer seven (7) calendar days prior to the bid opening.
  - 1. Submit each request for substitution on the form contained in Section 00 63 25-Substitution Request Form for consideration in accordance with procedures required below.
  - 2. Identify the product or the fabrication or installation method to be replaced in each request. Include related specification sections and drawing number.
  - 3. Provide complete documentation on both the product specified and the proposed substitution including the following information as appropriate.
    - a. Comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
    - b. Samples where applicable or requested.
    - c. A detailed comparison of significant qualities of the proposed substitution with those of the work specified.

- d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors that will become necessary to accommodate the proposed substitution.
  4. Certification by the Contractor or manufacturer that the substitution proposed is equal-to or better in every respect to that required by the Contract Documents, and that it will perform equal or superior to product specified in the application indicated. The Contractor waives any right to additional payment or time, which may subsequently become necessary because of the failure of the substitution to perform adequately.
  5. Engineer's Action: The Engineer may request additional information or documentation necessary for evaluation of the request. The Engineer will notify the Contractors of acceptance of the proposed substitution by means of an addendum to the bid documents. If the proposed substitute is accepted through an addendum use the product specified by name.
- B. Engineer's Substitution Approval during bidding and subsequent addendums does not void the Contractor's responsibility to submit the required shop drawings and comply with the other contract documents and requirements.

#### **1.05 SUBMITTALS – AFTER AWARD OF CONTRACT**

- A. After award, requests for approval of equivalent items shall be submitted in writing to the Engineer for approval within seven (7) calendar days after Notice to Proceed.
- B. Submit each request in writing for substitution for consideration in accordance with procedures required below.
- C. Requests for approval of equivalent items shall be accompanied by information sufficient for the Engineer to make a determination as to the equivalency of a product. The determination of the Engineer of the equivalency of a product shall be final. The Engineer reserves the right to request information or documentation for evaluation including but not limited to the following:
  1. Statement indicating why specified product cannot be provided.
  2. Coordination of information, including a list of modifications needed to other parts of the work that will be necessary to accommodate proposed substitution.
  3. Product data including drawings, descriptions, and fabrication/installation procedures.
  4. Samples where applicable.
  5. Material test reports from a qualified testing agency indicating the interpreting test results for compliance with requirements.
  6. Contractor's certification that proposed substitution complies with requirements in the contract documents and is appropriate for applications indicated.
  7. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
  8. If requesting product substitution after bid award, Contractor shall provide cost information including proposal of change, if any, in the contract sum.

**PART 2 PRODUCTS**

**2.01 SUBSTITUTIONS – PRIOR TO BID**

- A. Conditions: The Contractor’s substitution request will be received and considered by the Engineer when all of the following conditions are satisfied, as determined by the Engineer; otherwise requests will be returned without action except to record noncompliance with these requirements.
1. Extensive revisions to Contract Documents are not required.
  2. Proposed changes are in keeping with the general intent of Contract Documents.
  3. The request is timely, fully documented and properly submitted.
  4. The request is directly related to an “or equal” clause or similar language in the Contract Documents.
- B. The Contractor’s submittal and Engineer’s acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an approval or valid request for substitution.

**2.02 SUBSTITUTIONS – AFTER AWARD OF CONTRACT**

- A. Substitutions after award are solely for the convenience of the Contractor and will be considered and approved by Change Order which is accompanied by a credit to the Owner. The Contractor shall be required to bear any additional costs related to making the substituted material or system work, such as extra engineering, material or system modifications, or any time considerations relating to material or system installation requirements.

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION 01 25 00**

## SECTION 01 31 00

### PROJECT MANAGEMENT AND COORDINATION

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
1. General project coordination procedures.
  2. Coordination.
  3. Administrative and supervisory personnel.
  4. Project meetings, if requested.
  5. Weekly Reports, if requested.

##### 1.02 RELATED DOCUMENTS

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

##### 1.03 COORDINATION

- A. Coordinate construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. The Contractor shall coordinate its operations with those included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Contract Progress Reporting: The scheduling and sequence of all operations shall be carefully coordinated with the Owner and Engineer.
- C. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
  2. Preparation of the Schedule of Values.
  3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-Construction conference.
7. Pre-installation conferences.
8. Project closeout activities.

#### **1.04 PROJECT MEETINGS**

##### **A. Pre-Construction Meeting**

1. A Pre-Construction Meeting will be scheduled as soon as possible after the award of the contract. The Engineer's Representative will compile minutes of the meeting, and will furnish a copy of the minutes to the Contractor and each person present. The Contractor may make and distribute such other copies as he wishes.
2. Attendance: Contractor Project Manager, Job Superintendent and Job Foreman, Owner, Engineer's Representative, manufacturer's representatives, installers of related work and all other persons concerned with the installation and performance. The Contractor shall also provide three (3) local telephone numbers, which may be used to contact the Contractor or his authorized representative in the event of an emergency after normal business hours.
3. Minimum Agenda: Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and the Project Manager; channels and procedures for communication; construction schedule, including sequence of critical work; contract documents, including distribution of required copies of Drawings and revisions; processing of Shop Drawings and other data submitted to the Project Manager for review; rules and regulations governing performance of the work and procedures for safety, first aid, security, quality control, housekeeping and related matters.

##### **B. Punch List (Pre-final) Inspection Meeting**

1. Scheduled by Owner and Engineer upon written notification of substantial completion of work from the Contractor.
2. Attendance: Owner, Engineer, Contractor, material manufacturer.
3. Minimum Agenda: Walkover inspection; verification of substantial completion; identification of punch list items; identification of problems, which may impede issuance of warranties.
4. Refer to Section 01 77 00, Closeout Procedures for other requirements.

##### **C. Final Inspection Meeting**

1. Scheduled by Owner and Engineer upon written notification of final completion of work from the Contractor.
2. Attendance: Owner, Engineer, Contractor, material manufacturer.
3. Minimum Agenda: Walkover inspection; verification of final completion including the completion of the punch list items.
4. Refer to Section 01 77 00, Closeout Procedures for other requirements.

#### **1.05 REPORTS**

- ##### **A. Weekly Construction Reports:** Prepare a weekly construction report recording the following information concerning events at Project site and Fax or email a copy to the Engineer by noon on the following Monday:

1. Approximate daily count of personnel at Project Site.
2. Daily material deliveries.
3. Daily high and low temperatures and general weather conditions.
4. Accidents.
5. Unusual events.
6. Stoppages, delays, shortages, and losses.
7. Orders and requests of authorities having jurisdiction.
8. Change Proposal Forms received and implemented.
9. Change Directives received and implemented.
10. Daily Allowance and Unit Cost usage.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION 01 31 00**

## SECTION 01 33 00

### SUBMITTAL PROCEDURES

#### **PART 1        GENERAL**

##### **1.01        SECTION INCLUDES**

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

##### **1.02        RELATED DOCUMENTS**

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

##### **1.03        SUBMITTAL PROCEDURE**

- A.    Refer to the General Conditions, Article 3, for submittal procedures.
- B.    Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals and provide letter describing in detail any proposed changes, substitutions, or deviations from the project or manufacturer's specifications. A written explanation of why substitutions should be considered is required and shall be included under the appropriate tab.
- C.    Transmittal: Package submittals appropriately for transmittal and handling using a transmittal form. Engineer will discard submittals received from sources other than Contractor. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- D.    Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

##### **1.04        SCHEDULE OF SUBMITTALS**

- A.    The following submittal items shall be submitted to meet the requirements specified herein:
  - 1.    Emergency contact list including pager, mobile and home numbers of key Contractor and Subcontractor personnel, and office and mobile numbers of key Owner and REI personnel.
  - 2.    Work schedule indicating start date, crew size, production rate, completion date, etc.
  - 3.    Sample Application for Payment including Schedule of Values. Immediately after execution and delivery of the Contract, and before the first partial payment is submitted, the Contractor shall submit to the Owner through the Engineer the following:
    - a.    An Application for Payment on AIA G702.
    - b.    A schedule of values on AIA G703 Continuation Sheet consisting of a detailed breakdown of the Contract amount showing separate figures for labor and materials. The work listed under the various sections and subsections of the Specifications shall serve as the format for preparation



of the schedule. Refer to the sample contained in Section 00 62 73.

4. Copy of Contractor's Certificate of Insurance.
5. Copy of Performance and Payment Bonds.
6. Copy of Construction Permits.
7. Copy of all warranties indicated in Section 01 77 00 to meet the requirements of their respective specification section.
8. Letter describing in detail any proposed changes, substitutions, or deviations from the project or manufacturer's specifications. A written explanation of why substitutions should be considered is required.
9. Refer to technical specification sections for specific submittal items required by those sections.
10. Shop drawings indicating that the Contractor shall install materials as detailed in the Contract Documents, unless revisions are clearly identified by the Contractor and properly authorized by the Engineer.
11. Existing damaged/dysfunctional components documentation (videotape, photos, etc.) including but not limited to; asphalt spills, windows, walls, sidewalks, paving, ceilings, etc. Lack of submission prior to commencement of work indicates Contractor has discovered no existing damaged components and takes responsibility for any damages caused by operations.
12. Complete list of materials with Material Safety Data Sheets (MSDS).

## **PART 2 PRODUCTS**

### **2.01 SUBMITTALS**

- A. General: Prepare and submit Submittals required herein and by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Manufacturer's catalog cuts.
    - e. Printed performance curves.
    - f. Operational range diagrams.
    - g. Compliance with recognized trade association standards.
    - h. Compliance with recognized testing agency standards.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
  1. Preparation: Include the following information, as applicable:
    - a. Dimensions.

- b. Identification of products.
  - c. Fabrication and installation drawings.
  - d. Roughing-in and setting diagrams.
  - e. Shopwork manufacturing instructions.
  - f. Templates and patterns.
  - g. Schedules.
  - h. Notation of coordination requirements.
  - i. Notation of dimensions established by field measurement.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
- D. Samples: Prepare physical units of materials or products, including the following:
- 1. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
  - 2. Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned.
  - 3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Engineer's sample where so indicated. Attach label on unexposed side.
  - 4. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
  - 5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
- E. Contractor's Construction Schedule: Comply with requirements in Division 01.
- F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.
- G. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- H. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- I. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

- J. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- K. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- M. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- N. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- O. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

**PART 3 EXECUTION**

**3.01 CONTRACTOR'S REVIEW**

- A. Review each submittal, check for compliance with the Contract Documents and note corrections and field dimensions prior to submitting to Engineer.

**3.02 ENGINEER'S ACTION**

- A. Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal item with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  - 1. Accepted.
  - 2. Accepted as noted.
  - 3. No Action Required.
  - 4. Rejected/Resubmit.
  - 5. Not Subject to Review.
- B. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

**END OF SECTION 01 33 00**

## SECTION 01 40 00

### QUALITY REQUIREMENTS

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

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

##### **1.02 RELATED DOCUMENTS**

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

##### **1.03 DEFINITIONS**

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

##### **1.04 DELEGATED DESIGN**

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

##### **1.05 SUBMITTALS**

- A. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

##### **1.06 QUALITY ASSURANCE**

- A. It is the intent under this contract that workmanship shall be of the best quality consistent with the materials and construction methods specified. The presence or absence of the Owner's or Engineer's representative shall in no way relieve the Contractor of his responsibility to furnish materials and construction in full compliance with the drawings

and specifications. The Owner and Engineer shall have the authority to judge the quality and require replacement of unacceptable work or personnel at any time.

- B. All contractors shall cooperate in the execution of their work and shall plan their work in such manners as to avoid conflicting schedules or delay of work. If any part of a Contractor's work depends upon the work of another Contractor, defects, which may affect that work, shall be reported to the Engineer in order that prompt inspection may be made and defects corrected. Commencement of work by a Contractor where such condition exists will constitute acceptance of the other Contractor's work as being satisfactory in all respects to receive the work commenced, except defects, which may later develop. Work of all trades under this contract shall be closely coordinated in such a manner as to obtain the best possible workmanship for the entire project. All components of the work shall be installed in accordance with the best practices of the particular trade. The General Contractor is responsible to advise the Owner sufficiently in advance of operations to allow for assignment of personnel.
- C. Materials or methods described by words which, when applied, have a well known technical or trade meaning will be held to refer to such recognized standard. Standard specifications or manufacturer's literature, when referenced, shall be of the latest revision or printing unless otherwise stated, and are intended to establish the minimum requirements acceptable.
- D. All materials shall be new, all materials and workmanship shall be in every respect in accordance with the best modern practice.
- E. When special makes or grades of material which are normally packaged by the supplier or manufacturer are specified or accepted, such materials shall be delivered to the site in original packages or containers with seals unbroken and labels intact and shall not be opened until inspected and approved by the Consultant. Contractor shall notify the Consultant prior to such material's delivery.
- F. The Contractor's Foreman or Superintendent to maintain one complete set of the contract documents and approved submittals on the job site.
- G. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
  - 1. Acceptable Contractor:
    - a. Have a minimum of five (5) years experience in installing the same or similar materials specified under the same firm name as that submitting the bid. If requested, submit a copy of firm's Articles of Incorporation to verify years in business. Also all crew workers on site are to be experienced and have a working knowledge of the system being installed.
    - b. Principals of the firm to have a minimum of ten (10) years experience in the estimating, supervision, management and administration of a contracting firm engaged in the application of building envelope involving removal of the existing building envelope systems.
    - c. Licensed by state work is occurring in for the type and dollar amount of work contemplated by these Contract Documents.
    - d. Never filed bankruptcy or filed for protection from creditors.

- H. At any time during the construction and completion of work covered by these Specifications, if the conduct of any workman of the various crafts be determined unsuitable or a nuisance to the Owner or Engineer, or if the workman be considered incompetent or detrimental to the work, the Contractor shall order such party removed immediately from the grounds with the person not returning at any time during the course of work on the project.
- I. During the performance of any work by the Contractor or subcontractors, the Contractor shall provide for the entire length of the project a full time onsite superintendent/representative meeting the following requirements:
1. For the purpose of these Specifications the designation “superintendent” is hereby defined as the individual present on the job site at all times while work is being performed, and whose primary responsibility is to supervise and direct the performance of the Work.
  2. The superintendent shall be in attendance at the project site at all times during the progress of the work and his duties as superintendent shall be limited to this project only. The superintendent shall supervise and instruct workmen without engaging in the work process. Should the superintendent be absent temporarily from the project at any time, he shall designate a competent foreman to assume duties. During the superintendent’s absence the foreman shall not engage in the work process but shall supervise and instruct only. Likewise, any communications given to the foreman shall be as binding as if given to the Contractor.
  3. It shall be the superintendent’s responsibility to communicate all matters pertaining to the Work with the Owner and/or Engineer. In case of emergency or safety, superintendent shall communicate directly with the Owner and/or Engineer. No decisions regarding changes in the Work will be made without the Owner’s knowledge.
  4. Possess decision making authority and ability.
  5. Able to demonstrate knowledge of work being installed.
  6. Fluent in the English language (i.e. reading, writing and speaking).
  7. In possession of mobile telephone at all times.
  8. Employed by the Contractor at least six months prior to project commencement.
  9. Owner and Engineer approval.
- J. No later than ten days prior to the pre-construction conference, Contractor shall provide the Owner, in writing, the names of the proposed project manager, job superintendent, and foreman for approval. If he so determines, the Owner, without giving cause, may request an additional name, or names, be submitted for approval. The Owner will notify the Contractor of his acceptance at least 48 hours prior to the pre-construction conference.
1. Once approved, the superintendent will not be changed except with the consent of the Owner unless either prove to be unsatisfactory to the Owner or Contractor, or cease to be in the Contractor’s employment.
  2. Promotion, transfer, or reorganization within the company will not be an acceptable cause for reassignment of the superintendent.
  3. The superintendent shall have had a minimum of five (5) years continuous experience as a job superintendent.
- K. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

- L. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 329, and that specializes in types of tests and inspections to be performed.
- M. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- N. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

**1.07 QUALITY CONTROL**

- A. The authorized representatives and agents of Owner shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records.
- B. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
  - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
  - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- C. Contractor's Responsibilities:
  - 1. Repair and protection of work and materials are Contractor's responsibility.
  - 2. Should any work or materials not conform with requirements of the Specifications or become damaged during the progress of the work, such work or materials shall be removed and replaced, together with any work disarranged by such alterations, at any time before completion and acceptance of the project. All such work shall be done at the expense of the Contractor.
  - 3. Contractor will coordinate documents with manufacturer and perform such testing, reporting, and communication incidental to provisions of the warranty procedures.
  - 4. Inclement Weather
    - a. In the event of temporary suspension of work as during inclement weather, or whenever the Engineer shall direct, the Contractor will protect carefully its work and materials against damage or injury from weather. If, in the opinion of the Engineer, any work or materials have been damaged or injured by reason of failure of the Contractor to protect its work, such materials shall be removed and replaced at the expense of the Contractor.
    - b. During inclement weather and temporary suspension of work, the Contractor shall inspect the facility no later than 9:00 AM each day for leaks and perform temporary repairs if necessary. Inspections shall be made daily during extended periods of inclement weather. Upon arrival at the facility, Superintendent shall immediately inform the Owner of his pres-

ence and purpose.

- c. If Contractor does not inspect the facility by 9:00 AM on days of inclement weather and there is one or more leaks attributable to the Work, at 9:15 AM the Owner shall exercise his right to contact an outside contractor to perform temporary repairs as necessary to prevent damage to the building, its contents and to minimize disruption. The Contractor shall reimburse the outside contractor an equitable amount as determined solely by the outside contractor. If the Contractor arrives at the project site after the outside contractor has been contacted, but before temporary repairs are made, the outside contractor shall be reimbursed the fixed amount of \$500.00, each occasion, for mobilization and/or travel expenses.
- d. Should inclement weather occur after normal business hours Friday, Saturday, and Sunday or holidays, Contractor shall make arrangements with the Owner to provide access to the building to inspect for leaks. The Owner shall be compensated for providing personnel for the service on an hourly rate basis as determined solely by the Owner.

D. **Manufacturer's Field Services:** During construction and until substantial completion, manufacturer's representative shall perform quality assurance site visits to ensure materials are being properly installed and as required to obtain the specified warranty. Site visits are to be conducted every ten (10) working days.

- 1. The first site visit shall be performed within the first three (3) days of operations.
- 2. Coordinate all site visits with Engineer. Submit reports of findings within one week of inspection. Payment applications will be rejected until applicable reports are received.
- 3. Inspections to be performed by an employee of the selected manufacturer that is assigned full time to their technical services department. Sales personnel will not be acceptable for this function and may result in rejection of the work installed that does not fulfill this requirement.
- 4. Manufacturer's final inspections shall be performed only with REI personnel in attendance. A minimum of seven days' written notice is required. Any manufacturer's final inspection conducted without REI personnel in attendance will be repeated at no additional cost to the Owner.
- 5. Any violation of this requirement will result in the removal of that manufacturer for a period of not less than one year from the Engineer's accepted materials list.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.01 REPAIR AND PROTECTION**

- A. **General:** On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Comply with the Contract Document requirements for Section 01 73 29, "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.



- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION 01 40 00**

## SECTION 01 42 00

### REFERENCES

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Requirements relating to Referenced Standards.

##### **1.02 RELATED DOCUMENTS**

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

##### **1.03 DEFINITIONS**

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Engineer. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.
- J. "Experienced": When used with an entity, "experienced" means having successfully

completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

- K. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

**1.04 INDUSTRY STANDARDS**

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Engineer for a decision before proceeding.
  - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding.
- D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

	Accessibility Guidelines for Buildings and Facilities Available from Access Board <a href="http://www.access-board.gov">www.access-board.gov</a>
CFR	Code of Federal Regulations Available from Government Printing Office <a href="http://www.access.gpo.gov/nara/cfr">www.access.gpo.gov/nara/cfr</a>
FED-STD	Federal Standard (See FS)
FS	Federal Specification Available from National Institute of Building Sciences <a href="http://www.nibs.org">www.nibs.org</a>

**1.05 ABBREVIATIONS AND ACRONYMS**

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change

and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) <a href="http://www.aluminum.org">www.aluminum.org</a>
ACI	American Concrete Institute/ACI International <a href="http://www.aci-int.org">www.aci-int.org</a>
ACPA	American Concrete Pipe Association <a href="http://www.concrete-pipe.org">www.concrete-pipe.org</a>
AGC	Associated General Contractors of America (The) <a href="http://www.agc.org">www.agc.org</a>
AHA	American Hardboard Association <a href="http://www.ahardbd.org">www.ahardbd.org</a>
AI	Asphalt Institute <a href="http://www.asphaltinstitute.org">www.asphaltinstitute.org</a>
AIA	American Institute of Architects (The) <a href="http://www.aia.org">www.aia.org</a>
AISC	American Institute of Steel Construction <a href="http://www.aisc.org">www.aisc.org</a>
AISI	American Iron and Steel Institute <a href="http://www.steel.org">www.steel.org</a>
AITC	American Institute of Timber Construction <a href="http://www.aitc-glulam.org">www.aitc-glulam.org</a>
ALCA	Associated Landscape Contractors of America <a href="http://www.alca.org">www.alca.org</a>
ALSC	American Lumber Standard Committee
ANLA	American Nursery & Landscape Association <a href="http://www.anla.org">www.anla.org</a>
ANSI	American National Standards Institute <a href="http://www.ansi.org">www.ansi.org</a>
APA	APA - The Engineered Wood Association <a href="http://www.apawood.org">www.apawood.org</a>
APA	Architectural Precast Association <a href="http://www.archprecast.org">www.archprecast.org</a>
ASCE	American Society of Civil Engineers <a href="http://www.asce.org">www.asce.org</a>
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers <a href="http://www.ashrae.org">www.ashrae.org</a>
ASME	ASME International (The American Society of Mechanical Engineers International) <a href="http://www.asme.org">www.asme.org</a>
ASTM	American Society for Testing and Materials <a href="http://www.astm.org">www.astm.org</a>
AWI	Architectural Woodwork Institute <a href="http://www.awinet.org">www.awinet.org</a>
AWPA	American Wood-Preservers' Association <a href="http://www.awpa.com">www.awpa.com</a>
AWS	American Welding Society <a href="http://www.aws.org">www.aws.org</a>
BHMA	Builders Hardware Manufacturers Association <a href="http://www.buildershardware.com">www.buildershardware.com</a>
BIA	Brick Industry Association (The)

	<a href="http://www.bia.org">www.bia.org</a>
CCFSS	Center for Cold-Formed Steel Structures <a href="http://www.umn.edu/~ccfss">www.umn.edu/~ccfss</a>
CDA	Copper Development Association Inc. <a href="http://www.copper.org">www.copper.org</a>
CIMA	Cellulose Insulation Manufacturers Association <a href="http://www.cellulose.org">www.cellulose.org</a>
CISCA	Ceilings & Interior Systems Construction Association <a href="http://www.cisca.org">www.cisca.org</a>
CISPI	Cast Iron Soil Pipe Institute <a href="http://www.cispi.org">www.cispi.org</a>
CLFMI	Chain Link Fence Manufacturers Institute <a href="http://www.chainlinkinfo.org">www.chainlinkinfo.org</a>
CPA	Composite Panel Association (Formerly: National Particleboard Association) <a href="http://www.pbmdf.com">www.pbmdf.com</a>
CPPA	Corrugated Polyethylene Pipe Association <a href="http://www.cppa-info.org">www.cppa-info.org</a>
CRSI	Concrete Reinforcing Steel Institute <a href="http://www.crsi.org">www.crsi.org</a>
CSI	Construction Specifications Institute (The) <a href="http://www.csinet.org">www.csinet.org</a>
DHI	Door and Hardware Institute <a href="http://www.dhi.org">www.dhi.org</a>
EIMA	EIFS Industry Members Association <a href="http://www.eifsfacts.com">www.eifsfacts.com</a>
EJMA	Expansion Joint Manufacturers Association, Inc. <a href="http://www.ejma.org">www.ejma.org</a>
FMG (FM)	FM Global (Formerly: FM - Factory Mutual System) <a href="http://www.fmglobal.com">www.fmglobal.com</a>
GA	Gypsum Association <a href="http://www.gypsum.org">www.gypsum.org</a>
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) <a href="http://www.glasswebsite.com/gana">www.glasswebsite.com/gana</a>
HPVA	Hardwood Plywood & Veneer Association <a href="http://www.hpva.org">www.hpva.org</a>
IGCC	Insulating Glass Certification Council <a href="http://www.igcc.org">www.igcc.org</a>
LGSI	Light Gage Structural Institute <a href="http://www.loseke.com">www.loseke.com</a>
MBMA	Metal Building Manufacturers Association <a href="http://www.mbma.com">www.mbma.com</a>
MCA	Metal Construction Association <a href="http://www.metalconstruction.org">www.metalconstruction.org</a>
MFMA	Metal Framing Manufacturers Association
MIA	Marble Institute of America <a href="http://www.marble-institute.com">www.marble-institute.com</a>
NAAMM	National Association of Architectural Metal Manufacturers <a href="http://www.naamm.org">www.naamm.org</a>
NAIMA	North American Insulation Manufacturers Association (The) <a href="http://www.naima.org">www.naima.org</a>

NCMA	National Concrete Masonry Association <a href="http://www.ncma.org">www.ncma.org</a>
NCPI	National Clay Pipe Institute <a href="http://www.ncpi.org">www.ncpi.org</a>
NECA	National Electrical Contractors Association <a href="http://www.necanet.org">www.necanet.org</a>
NEMA	National Electrical Manufacturers Association <a href="http://www.nema.org">www.nema.org</a>
NETA	InterNational Electrical Testing Association <a href="http://www.netaworld.org">www.netaworld.org</a>
NFPA	National Fire Protection Association <a href="http://www.nfpa.org">www.nfpa.org</a>
NFRC	National Fenestration Rating Council <a href="http://www.nfrc.org">www.nfrc.org</a>
NGA	National Glass Association <a href="http://www.glass.org">www.glass.org</a>
NHLA	National Hardwood Lumber Association <a href="http://www.natlhardwood.org">www.natlhardwood.org</a>
NLGA	National Lumber Grades Authority <a href="http://www.nlga.org">www.nlga.org</a>
NPA	National Particleboard Association (See CPA)
NRCA	National Roofing Contractors Association <a href="http://www.nrca.net">www.nrca.net</a>
NRMCA	National Ready Mixed Concrete Association <a href="http://www.nrmca.org">www.nrmca.org</a>
NSA	National Stone Association <a href="http://www.aggregates.org">www.aggregates.org</a>
NTMA	National Terrazzo and Mosaic Association, Inc. <a href="http://www.ntma.com">www.ntma.com</a>
NWWDA	National Wood Window and Door Association (See WDMA)
PCI	Precast/Prestressed Concrete Institute <a href="http://www.pci.org">www.pci.org</a>
PDCA	Painting and Decorating Contractors of America <a href="http://www.pdca.com">www.pdca.com</a>
PDI	Plumbing & Drainage Institute <a href="http://www.pdionline.org">www.pdionline.org</a>
RCSC	Research Council on Structural Connections <a href="http://www.boltcouncil.org">www.boltcouncil.org</a>
RMA	Rubber Manufacturers Association <a href="http://www.rma.org">www.rma.org</a>
SDI	Steel Deck Institute <a href="http://www.sdi.org">www.sdi.org</a>
SDI	Steel Door Institute <a href="http://www.steeldoor.org">www.steeldoor.org</a>
SGCC	Safety Glazing Certification Council <a href="http://www.sgcc.org">www.sgcc.org</a>
SIGMA	Sealed Insulating Glass Manufacturers Association <a href="http://www.sigmaonline.org/sigma">www.sigmaonline.org/sigma</a>
SJI	Steel Joist Institute <a href="http://www.steeljoist.org">www.steeljoist.org</a>

SMACNA	Sheet Metal and Air Conditioning Contractors' National Association <a href="http://www.smacna.org">www.smacna.org</a>
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) <a href="http://www.sprayfoam.org">www.sprayfoam.org</a>
SPI	The Society of the Plastics Industry <a href="http://www.plasticsindustry.org">www.plasticsindustry.org</a>
SPIB	Southern Pine Inspection Bureau (The) <a href="http://www.spib.org">www.spib.org</a>
SPRI	SPRI (Single Ply Roofing Institute) <a href="http://www.spri.org">www.spri.org</a>
SSINA	Specialty Steel Industry of North America <a href="http://www.ssina.com">www.ssina.com</a>
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association) <a href="http://www.ssma.com">www.ssma.com</a>
SSPC	SSPC: The Society for Protective Coatings <a href="http://www.sspc.org">www.sspc.org</a>
SWI	Steel Window Institute <a href="http://www.steelwindows.com">www.steelwindows.com</a>
TCA	Tile Council of America, Inc. <a href="http://www.tileusa.com">www.tileusa.com</a>
TPI	Truss Plate Institute
UL	Underwriters Laboratories Inc. <a href="http://www.ul.com">www.ul.com</a>
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) <a href="http://www.wdma.com">www.wdma.com</a>
WMMPA	Wood Moulding & Millwork Producers Association <a href="http://www.wmmpa.com">www.wmmpa.com</a>
WWPA	Western Wood Products Association <a href="http://www.wwpa.org">www.wwpa.org</a>

- B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

BOCA	BOCA International, Inc. <a href="http://www.bocai.org">www.bocai.org</a>
IAPMO	International Association of Plumbing and Mechanical Officials (The) <a href="http://www.iapmo.org">www.iapmo.org</a>
ICBO	International Conference of Building Officials <a href="http://www.icbo.org">www.icbo.org</a>
ICC	International Code Council (Formerly: CABO - Council of American Building Officials) <a href="http://www.intlcode.org">www.intlcode.org</a>
SBCCI	Southern Building Code Congress International, Inc.

- C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CPSC	Consumer Product Safety Commission www.cpsc.gov
EPA	Environmental Protection Agency www.epa.gov
OSHA	Occupational Safety & Health Administration www.osha.gov

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION 01 42 00**



## SECTION 01 50 00

### TEMPORARY FACILITIES AND CONTROLS

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

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

##### **1.02 RELATED DOCUMENTS**

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

##### **1.03 USE CHARGES**

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Engineer and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, occupants of testing and inspecting agencies and personnel of authorities having jurisdiction.

##### **1.04 QUALITY ASSURANCE**

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
  - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

##### **1.05 PROJECT CONDITIONS**

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
  - 1. Keep temporary services and facilities clean and neat.
  - 2. Relocate temporary services and facilities as required by progress of the Work.
- B. Parking and Traffic Control: Contractor shall be responsible for obtaining and erecting street/parking lot signage as necessary to divert traffic away from staging areas, etc. Contractor is to coordinate signage requirements with the Owner and Engineer. All associated costs are to be borne by the Contractor. Contractor shall provide area for parking for subcontractors, Engineer and Owner representatives.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS/EQUIPMENT**

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer. Provide materials suitable for use intended.
- B. Water: Potable.
- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work.
- B. Provide each facility ready for use to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### **3.02 TEMPORARY UTILITY INSTALLATION**

- A. General: Engage appropriate local utility company to install temporary service if service is not available from Owner. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
  - 1. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
  - 2. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.
- B. Water Service: Water for construction purposes will be available from the Owner at no charge. Contractor shall operate exterior hose bibs only with properly fitted handles which shall be removed at the end of each work day. Any damage to hose bibs or hose bib stems shall be repaired by Contractor. Hose bibs shall not be operated with pliers.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities. Facilities will be located at sites approved by Owner.
  - 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
  - 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.

3. Drinking-Water Facilities: Provide bottled-water, drinking-water units.
- D. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

### **3.03 SUPPORT FACILITIES INSTALLATION**

- A. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Section 01 74 00, "Cleaning and Waste Management" for progress cleaning requirements.
1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.

### **3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION**

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Provide, erect and maintain construction fencing around all storage and staging areas.
- C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- D. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  2. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.
  3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  4. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.

5. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
  6. Protect air-handling equipment.
  7. Weatherstrip openings.
- E. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

**3.05 OPERATION, TERMINATION, AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

**END OF SECTION 01 50 00**

## SECTION 01 73 29

### CUTTING AND PATCHING

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. This Section includes procedural requirements for cutting and patching.

##### **1.02 RELATED DOCUMENTS**

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

##### **1.03 DEFINITIONS**

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

##### **1.04 QUALITY ASSURANCE**

- A. Engineer's Approval: Obtain approval of cutting and patching before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.
- B. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio. Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations sealed by a licensed Engineer in the state of the project showing integration of reinforcement with original structure.
- C. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- E. Cutting and Patching Conference: If extensive cutting and patching is required, before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

##### **1.05 WARRANTY**

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not

to void existing warranties.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

### **3.02 PREPARATION**

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

### **3.03 PERFORMANCE**

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
  3. Floors and Walls: Where walls or partitions that are removed extend from one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather tight condition.
  5. Ceilings: Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty and similar materials.

**END OF SECTION 01 73 29**

## SECTION 01 74 00

### CLEANING AND WASTE MANAGEMENT

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. The Owner has established that this Project shall include proactive measures for waste management participation by all parties to the contract.
  - 1. The purpose of this program is to ensure that during the course of the Project all diligent means are employed to pursue practical and economically feasible waste management and recycling options.
  - 2. Upon award, each subcontractor shall be required to furnish documentation from suppliers or manufacturers regarding waste management and recycling options for those products and procedures furnished.
  - 3. Waste disposal to landfills shall be minimized.

##### **1.02 RELATED DOCUMENTS**

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

##### **1.03 DEFINITIONS**

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

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

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



## **PART 3 EXECUTION**

### **3.01 PROGRESS CLEANING**

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials in a legal manner.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Final Acceptance.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
  - 1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Final Acceptance.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

**3.02 CONSTRUCTION WASTE MANAGEMENT PLAN**

- A. Waste Management Plan shall include the following:

- 1. Solid Waste Disposal and Diversion document.
  - a. Identification of materials recycled.
  - b. Identification of materials landfill.
  - c. Identification of hazardous wastes and disposal.
- 2. Locations of sorting and waste storage facilities on Site Plan of project.
- 3. Final documentation of subcontractor/supplier waste management/recycling data.
- 4. Final documentation of hazardous waste disposal plan.

- B. Construction Waste Management Plan Implementation:

- 1. The Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing and documenting the Waste Management Plan.
- 2. The "Summary of Construction Waste/Recycling" shall be completed each month and submitted as part of Application for Payment.
  - a. All materials identified in the Summary shall be reported by weight.
  - b. Where weight is not applicable, Contractor shall report materials by units applicable to material recipient.
  - c. Contractor shall procure receipts or other validation of waste management procedures and include them as part of the submittal.
- 3. The Contractor shall distribute copies of the "Summary of Construction Waste/Recycling" to the Engineer, Owner and each subcontractor involved in the plan.
- 4. The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse and return methods to be used by all parties at appropriate stages of the Work.
- 5. Separation facilities:
  - a. Contractor shall define specific areas to facilitate separation of materials for recycling, salvage, re-use or return.
  - b. Recycle and waste bin areas are to be maintained in an orderly manner and clearly marked to avoid contamination of materials.
  - c. Do not mix recyclable materials.
  - d. Store hazardous wastes in secure areas.
- 6. Hazardous wastes:
  - a. Hazardous wastes shall be separated, stored and disposed of in accordance with local and EPA regulations and additional criteria listed below:
    - i. Building products manufactured with PVC or containing chlorinated compounds shall not be incinerated.
    - ii. Unused fertilizers shall not be co-mingled with construction

waste.

- C. Program profits:
  - 1. All profits from recycling of construction waste shall be granted to the Contractor.

### **3.03 FINAL CLEANING**

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Final Acceptance.
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - e. Remove debris and surface dust from roofs and walls.
    - f. Clean transparent materials and glass in windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
    - g. Remove labels that are not permanent.
    - h. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    - i. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess foreign substances.
    - j. Replace parts subject to unusual operating conditions.
    - k. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

**END OF SECTION 01 74 00**

## SECTION 01 77 00

### CLOSEOUT PROCEDURES

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Inspection Procedures.
  2. Project Record Documents.
  3. Warranties.

##### **1.02 RELATED DOCUMENTS**

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

##### **1.03 SUBSTANTIAL COMPLETION**

- A. The Contractor shall submit written certification to the Engineer that the Project is substantially complete along with the following:
1. Prepare a list of items to be completed and corrected (Contractor's punch list), the value of items on the list, and reasons why the Work is not complete.
  2. Advise Owner of pending insurance changeover requirements.
  3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  4. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  5. Advise Owner of changeover in heat and other utilities.
  6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  7. Complete final cleaning requirements, including touchup painting.
  8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Punch List Inspection: On receipt of substantial completion certification, the Engineer will make a punch list inspection within seven (7) days after receipt of certification.
1. A punch list of items will be prepared for correction and completion before the Final Inspection. The Contractor shall complete the punch list items within fifteen (15) days of the punch list inspection.
  2. Should the Engineer consider the Work not substantially complete, he will immediately notify the Contractor, in writing, stating the reasons. The Contractor shall complete the Work and send a second written notice to the Engineer, certifying the Project is substantially complete, at which time the Engineer will re-inspect the work.
  3. Should the Engineer consider the Work substantially complete, he will prepare

and issue a Certificate of Substantial Completion (AIA G704) accompanied by the list of items to be completed or corrected (Punch List).

#### **1.04 FINAL COMPLETION**

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit signed copy of Engineer's inspection list of items to be completed or corrected (punch list). The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  3. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Final Inspection: The submission of the signed punch list constitutes as written request for final inspection for acceptance. On receipt of request, Engineer along with the Owner's Representative will conduct a final inspection within seven (7) days of receipt of certification.
1. Should the Engineer consider that the Work is finally complete in accordance with requirements of the Contract Documents, he will request the Contractor to make Project Closeout Submittals.
  2. Should the Engineer consider that the Work is not finally complete, he will notify the Contractor, in writing, stating the reasons.
  3. The Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written notice to the Engineer certifying that the Work is complete, at which time the Engineer will re-inspect the Work.

#### **1.05 PROJECT RECORD DOCUMENTS**

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.
1. The Contractor shall submit all required record documents and warranties within thirty (30) days of the punch list inspection. If the Contractor fails to properly submit all required items within this period, the Owner will have the right to impose liquidated damages in the amount of five hundred (\$500.00) dollars for each consecutive day until all of the items are properly submitted.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.

- b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
  - 3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
  - 4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 3. Note related Change Orders and Record Drawings, where applicable.
- D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference. The following items shall be submitted, not limited to:
  - 1. Completed and signed Engineer's Punch List.
  - 2. Copy of Manufacturer's Final Inspection Report.
  - 3. Landfill Charge Tickets.

**1.06 WARRANTIES**

- A. Thermoplastic Single-ply Roofing warranty as outlined in Section 07 54 00.
- B. Pre-Finished Sheet Metal finish warranty as outlined in Section 07 62 00.
- C. Contractor's two (2) year warranty on their company letterhead using sample contained in the Project Manual.
  - 1. Contractor will be required to attend an inspection prior to the 2-year warranty end date and complete any corrective action requested by Owner, Engineer, or Manufacturer at no additional cost to the Owner.
- D. Contractor's Asbestos-Free Warranty on their company letterhead using sample contained in the Project Manual.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION 01 77 00**

## SECTION 03 52 16.13

### LIGHTWEIGHT CELLULAR INSULATING CONCRETE

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Installation of lightweight insulating cellular concrete system.

##### **1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:
  - 1. Division 6, Section "Rough Carpentry".
  - 2. Division 7, Section "Preparation for Reroofing".
  - 3. Division 7, Section "Thermoplastic Single-Ply Roofing".
  - 4. Division 7, Section "Sheet Metal Flashing and Trim".
- B. Lightweight insulating concrete roof insulation components are defined by Underwriters Laboratories under section CCOX for floor-or-roof topping mixtures in the latest edition of the Underwriters Laboratories Fire Resistance Directory.
  - 1. Minimum system thickness shall obtain an R-value of 20.
  - 2. Minimum slope shall be 1/8" per foot and shall be tapered as indicated in the Contract Drawings with all necessary adjustments made in the field for complete roof drainage without standing or ponding water.
  - 3. Crickets to be located at curbs to achieve positive drainage and have a minimum slope of 1/4" per foot lengthwise and 1/2" per foot against the opposing slope.

##### **1.03 REFERENCES**

- A. American Society of Testing Materials (ASTM)
  - 1. ASTM C 150 - Standard Specification for Portland Cement.
  - 2. ASTM C 495 - Standard Test Method for Compressive Strength of Lightweight Insulating Concrete.
  - 3. ASTM C 796 - Standard Test Method for Foaming Agents for use in Producing Cellular Concrete using Preformed Foam.
  - 4. ASTM C 869 - Foaming Agents used in making Preformed Foam for Cellular Concrete.
  - 5. ASTM C 578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- B. Factory Mutual Research - FM
- C. Underwriters Laboratories, Inc. – UL



#### **1.04 SUBMITTALS**

- A. Refer to Section 01 33 00-Submittal Procedures for Submittals.
- B. Manufacturer's Product Data Sheets for all materials specified.
- C. Manufacturer's instructions for proper placement of the lightweight insulating concrete roof insulation system.
- D. Independent test results for the following performance criteria:
  - 1. Thermal insulation value per ASTM C 177.
  - 2. Mix design compressive strength per ASTM C 495.
  - 3. Mix design wet and dry density range per ASTM C 495.
- E. Shop drawing of roof plan showing roof slopes, thickness of insulation and fill, minimum 'R' value, roof penetrations and all specific details.

#### **1.05 QUALITY ASSURANCE**

- A. Applicator: Approved in writing by the manufacturer to install the roof insulation system.
- B. Fire Resistance Classifications: Provide a lightweight insulating concrete system meeting the following fire resistance standards:
  - 1. Tested by Underwriters Laboratories in accordance with the procedures of ASTM E 119 and listed in the Underwriters Laboratories Fire Resistance Directory.
  - 2. Tested by Factory Mutual Research and listed in the Factory Mutual Approval Guide as non-combustible or Class I.
- C. Lightweight insulating concrete system to achieve wind uplift classification as specified in Section "Thermoplastic Single-Ply Roofing".

#### **1.06 DELIVERY, STORAGE AND HANDLING**

- A. Deliver material in original unopened packages, fully identified as to manufacturer, brand or other identifying data and bearing the proper Underwriters Laboratories and Factory Mutual labels.
- B. Store material under cover, and in a dry location until ready for use.
- C. Remove products from site that show indication of moisture damage, caking, or other signs of deterioration and replace with undamaged materials.
- D. Familiarize every member of the application crew with the manufacturer's material safety data sheets and with fire and safety regulations recommended by OSHA, NRCA and governing codes.

**1.07 PROJECT CONDITIONS**

- A. The Contractor shall be responsible for obtaining water meter permits from the local utility authority before beginning work.
- B. When air temperatures of 40°F (4.4°C) or above are predicted to occur within the first 24 hours after placement, normal application procedures may be used.
- C. When air temperatures of 32°F - 40°F (0°C - 4.4°C) are predicted to occur within the first 24 hours after placement, heat mixing water to a maximum of 120°F.
- D. Cold weather placement (35°F [1.7°C] and falling) of cellular concrete should be avoided due to the possibility of the concrete freezing prior to final set. If cold weather installations are required, special considerations must be met. Contact the manufacturer for guidance.

**1.08 WARRANTY**

- A. Provide Owner with a no dollar limit Insulating Concrete Warranty, for a minimum of twenty (20) years to be included in roof membrane manufacturer's warranty, signed by the manufacturer stating:
  - 1. The Lightweight Insulating System will retain at least 80% of the designed thermal resistance for the warranty period.
  - 2. The Warranty shall include the composite roof deck system (lightweight insulating concrete and integral insulation board).
  - 3. The Insulating Concrete Roof Deck System will remain reroofable for the warranty period.
  - 4. The Insulating Concrete Warranty shall not limit, by geographic location, the Owners rights for claims, actions, and/or proceedings.

**PART 2 PRODUCTS**

**2.01 MANUFACTURER**

- A. Acceptable manufacturers include:
  - 1. Siplast
  - 2. Elastizell
  - 3. Celcore

**2.02 MATERIALS**

- A. Provide materials used in the lightweight concrete roof insulation system conforming to the following:
  - 1. Portland Cement: Conforming to ASTM C 150, type I unless otherwise approved.
  - 2. Foaming Agent: As produced by the lightweight concrete manufacturer.
  - 3. Insulation: Expanded polystyrene insulation board with nominal density of one

(1) pound per cubic foot (pcf), conforming to ASTM C578, Type I and containing approximately three percent (3%) open area. Board to be acceptable as part of the system warranty.

4. Water: Potable water as defined by US Department of Health, containing no more than 250 ppm of free chloride ions or other substances that would affect the set of Portland cement. Water shall be clean, fresh, and free from injurious quantities of acid, alkali, salt, oil, organic matter, or other impurities. Provide water with sufficient pressure and volume to meet the insulation application schedule.
  5. Admixtures: Admixtures for water reducing and set acceleration may be used if approved by the Engineer and manufacturer.
- B. Cant Compound: Material as recommended and approved by the Engineer and manufacturer.
  - C. Curing Compound: Curing Compound as recommended and approved by the Engineer and manufacturer.

### **2.03 MIX DESIGN**

- A. Mix materials in accordance with recommendations of manufacturer to yield the specified physical properties.
- B. Mix and pump cellular lightweight insulating concrete into place using a mixing plant approved by the manufacturer. Thoroughly blend all materials before discharging the mixer.
- C. Maintain a wet density of 36 pcf +/- 5 pcf [576 kg/m<sup>3</sup> +/- 2.25 kg/m<sup>3</sup>] at place of deposit.
- D. Maintain a consistency suitable to provide a plastic mix capable of being screeded to a smooth finish.

## **PART 3 EXECUTION**

### **3.01 INSPECTION**

- A. Verify that all surfaces to receive lightweight insulating concrete are free of oil, grease, paints/primers, loose mill scale, dirt or other foreign substances.
- B. Do not begin placement of the lightweight insulating concrete system until the Contractor has examined surfaces to receive the lightweight insulating concrete system and determined that the surfaces are acceptable. Contractor shall notify Engineer in writing

### **3.02 PREPARATION**

- A. Cover roof deck penetrations, drains, etc. before installing lightweight insulating concrete.
- B. Remove water or any other substance that would interfere with bonding of the lightweight insulating concrete system.

- C. Install square forms around roof drain scuppers fabricated from lumber as indicated in the Contract Drawings.
- D. Set screeds to assure insulating concrete is applied to the required depth.
- E. Protect elements surrounding the work of this Section from damage or disfiguration.

### **3.03 APPLICATION**

- A. Provide equipment and application procedures conforming to the material manufacturer's application instructions and all referenced ASTM, NRDCA, UL and FM published guidelines.
- B. Place lightweight insulating concrete slurry to minimum thickness of 1/8" over the top of existing substrate before embedding insulation board. Place the insulation board within 30 minutes of applying the insulating concrete to the substrate and in such a manner as to cause full contact of the board surface with the slurry coat. Lightweight insulating concrete shall enter the keying holes of the board. The insulation board shall be placed in a brick-like pattern of staggered joints butted tightly together. The maximum allowable insulation board step in a stair-step design is 1 inch insulation board.
- C. Place lightweight insulating concrete over top of the insulation board to a minimum thickness of two (2) inches. Unless otherwise noted, apply to a constant thickness with variations to provide positive drainage and eliminate ponding (ponding is defined as 1/4" of water in an area of 4 square feet remaining 24 hours after precipitation). Alter application to eliminate standing water.
  - 1. Lightweight concrete shall be applied in a manner to achieve a constant edge height as indicated in the details.
- D. Remove drain scupper sump forms as soon as the deck will support foot traffic. Mix and install drain scupper sump material per the manufacturer and approved by the Engineer. Hand form drain scupper sump transition from roof drain scupper to surrounding lightweight insulating concrete height.
- E. Crickets to be located at curbs to achieve positive drainage and have a minimum slope of 1/4" per foot lengthwise and 1/2" per foot against the opposing slope.
- F. Apply curing membrane over lightweight insulating concrete deck surface as early as practical for protection against excessive evaporation or dry out. The preferred application method is spraying. Prevent excess roof traffic for 24 hours.
- G. Avoid roof-top traffic over the roof insulation system until 24 hours has elapsed after last placement of insulating concrete.

**3.04 FIELD QUALITY CONTROL**

- A. Contractor shall work with Manufacturer to conduct random sampling, verify the wet density thickness, dry density, and fastener pull out resistance and secure compressive strength of test cylinders/cubes in accordance with ASTM C 495. A minimum of six cylinders/cubes to be made and tested for each project.
- B. Areas of floating insulation boards with less than the minimum thickness of lightweight concrete above are unacceptable and shall be replaced.
- C. Surface roughness in the field and at tie-ins is not acceptable and shall be corrected to membrane Manufacturer's and Engineer's satisfaction.
- D. Lightweight insulating concrete exposed to weather for over thirty days must be inspected by the manufacturer and accepted in writing.

**3.05 PATCHING**

- A. Perform all patching and repairing of insulating concrete using the same materials listed in this specification or using materials approved by the manufacturer and the Engineer.

**3.06 CLEAN-UP**

- A. The site and building shall be free of Portland cement stains, spills, aggregate, insulation trash and other debris.

**END OF SECTION 03 52 16.13**

## **SECTION 06 10 00**

### **ROUGH CARPENTRY**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Rough Carpentry work required to facilitate installation of new roof assembly including:
  - 1. Installation of new wood blocking.

##### **1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.
  - 1. Division 3, Section "Lightweight Cellular Insulating Concrete.
  - 2. Division 7, Section "Preparation for Reroofing".
  - 3. Division 7, Section "Thermoplastic Single-Ply Roofing".
  - 4. Division 7, Section "Sheet Metal Flashing and Trim".

##### **1.03 REFERENCES**

- A. Refer to the following references, current edition for specification compliance:
  - 1. North Carolina State Building Code.
  - 2. American Society for Testing and Materials (ASTM).
  - 3. American Plywood Association (APA).
  - 4. American National Standard.
    - a. ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.
  - 5. Underwriters Laboratories, Inc. (UL).
  - 6. FM Global/Factory Mutual Research (FM).

##### **1.04 DEFINITIONS**

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

##### **1.05 SUBMITTALS**

- A. Refer to Section 01 33 00, Submittal Procedures for Submittals.
- B. Manufacturer's Product Data Sheets for all materials specified certifying material complies with this specification.

##### **1.06 QUALITY ASSURANCE**

- A. Contractor shall inspect wood to be installed for damage, warping, splits, and moisture content as defined by the applicable wood products industry standards. Materials that do not comply shall be rejected.
- B. Rough carpentry installation shall present a smooth, consistent substrate for roof system and flashing installation.
- C. Qualifications of workers: Provide sufficient, competent and skilled carpenters in accordance with accepted practices and supervisors who shall be present at all times during execution of this portion of the work, and who shall be thoroughly familiar with type of construction involved in this section and related work and techniques specified.
- D. Moisture Content:
  - 1. Contractor shall be responsible for ensuring lumber is delivered, stored and installed at 19% or less moisture content.
  - 2. Plywood shall be 18% or less before being covered/enclosed into roofing assembly.
- E. Lumber Standards: Comply with PS 20 and applicable rules of respective grading and inspecting agencies for species and products indicated.
- F. Plywood Product Standards: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard for type of panel indicated.
- G. Installation of all required new rough carpentry for roofing and flashing terminations to ensure plumb, uniform and level metal flashings.
- H. Rough carpentry installation shall ensure roof membrane flashing transitions are smooth for complete roof drainage and appearance.
- I. Installation of all fasteners and associated materials to secure rough carpentry as detailed and specified.

**1.07 DELIVERY, STORAGE, AND HANDLING**

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

- E. Protect sheet materials from corners breaking and damaging surfaces, while unloading.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Lumber: Shall Be No. 2 or better spruce or southern yellow pine. Shall be sound, thoroughly seasoned, dressed to nominal finish dimension, and free of warpage, cupping, and bowing. Dimensions shall be determined by job conditions or as indicated in detail drawings.

### **2.02 FASTENERS**

- A. General:
  - 1. All fasteners shall be stainless steel.
  - 2. Nails shall not be used at roof edges to fasten rough carpentry, lumber, plywood, etc. Screws, anchors, and/or machine bolts shall be used to secure rough carpentry at roof perimeter edges.
- B. Wood to wood:
  - 1. Screws: No. 10 or greater, stainless steel wood screws, or insulation screws. Length to embed into base substrate a minimum of 1-1/2 inches.
  - 2. Nails: 8, 10 or 16 penny, stainless steel, ring shank nails. Length to embed into base substrate a minimum 1-1/2 inches. Acceptable manufacturers include:
    - a. Maze Nails.
    - b. Anchor Staple and Nail.
    - c. Swan Secure Products.
    - d. Manasquan Premium Fasteners.
- C. Wood to solid concrete substrates:
  - 1. Masonry screws, 1/4 inch minimum diameter, Type 410 stainless steel with flat head. Length to provide minimum 1" embedment into substrate. Acceptable manufacturers include:
    - a. Tapcon by ITW Buildex.
    - b. KWIK-CON II by Hilti.
    - c. Powers Fasteners Tapper +.
    - d. Engineers accepted equivalent.
  - 2. Sleeve-Type, or Wedge-Type, Expansion Anchor: Minimum 1/2 inch diameter, Type 304 or 316 Stainless Steel, Expansion Anchor Bolt Assembly of length as required to provided minimum embedment as required by fastener manufacturer based upon substrate being secured. Acceptable manufacturers include:
    - a. Lok/Bolt, Power Bolt or Power-Stud by Powers Fasteners.
    - b. Redi-Bolt, Dynabolt or Trubolt by Red Head Anchoring Systems.
    - c. Kwik Bolt by Hilti.
    - d. Engineers accepted equivalent.

## **PART 3 EXECUTION**



### **3.01 INSPECTION**

- A. Contractor shall inspect substrates to receive rough carpentry, and ensure substrates are in satisfactory condition prior to installation of rough carpentry.
- B. Contractor shall inspect all new and existing rough carpentry including fasteners for material condition before proceeding with installation. Deteriorated, rotted, damaged, split, warped, twisted or wet materials shall be removed and replaced with specified materials.
- C. Contractor shall remove old cants, tapered edge strips, debris, old fasteners, etc. that interfere with the installation of new rough carpentry.
- D. Contractor shall notify Engineer in writing of unsatisfactory conditions.
- E. Commencement of work signifies Contractor's acceptance of substrates. Any defects in roofing work resulting from such accepted substrates shall be corrected at no additional expense to the Owner.

### **3.02 PREPARATION**

- A. Roof Deck and Structure:
  - 1. Roof deck and structure shall be dried and broomed and/or vacuumed clean of debris and foreign matter prior to installation of the new rough carpentry.
  - 2. Contractor shall adjust substrates to receive rough carpentry to ensure completed rough carpentry installation is acceptable for roofing and sheet metal flashings.

### **3.03 INSTALLATION**

- A. Install new wood blocking, nailers, and curbs to achieve a minimum eight inch flashing height above the roof membrane. Wood nailers at perimeter roof edges shall be installed to match lightweight insulating concrete height. Maintain constant nailer height at perimeter edges.
  - 1. Install of new wood blocking at existing through edge scupper openings.
  - 2. New wood blocking the match the dimensions of the existing wood nailers at the roof edge.
  - 3. Install a minimum of four (4) per wood block.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, material cut to fit, and braced to hold work in proper position. Use a belt sander to remove any obtrusive surface irregularities. Drive nails and spikes home; and pull bolt nuts tight with heads and washers in close contact with the wood.
- C. Fit rough carpentry to other construction; scribe and cope for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction. All joints between wood shall be installed for a smooth transition.
- D. New and Existing Wood Attachment:
  - 1. The Contractor shall consult the fastener manufacturer's published literature and

follow the recommended requirements for pre-drilling, cleaning, placement and compatibility of substrates. Follow manufacturer's requirements for fasteners spacing, substrate preparation and substrate embedment where not specified.

2. Securely attach rough carpentry work to substrate with fasteners. Anchor to resist a minimum force of 300 lbs/lineal foot in any direction.
  3. Rough carpentry attachment shall meet the requirements herein and that of the current FM Loss Prevention Data Sheet 1-49, Perimeter Flashing.
  4. Fasteners heads for screws, anchors and bolts terminating at the surface of nailers shall be provided with a minimum 5/8 inch diameter, stainless steel or similar corrosion resistance flat washer provided by fastener manufacturer, unless washer is provided from factory as part of the fastener assembly.
  5. Install bolts flush with the top surface of nailers where possible to avoid countersinking. Bolt bottom nailers then fasten upper nailers where possible. Countersink bolts, nuts and screws flush with wood surfaces only as detailed.
  6. Install fasteners without splitting wood. Pre-drill where necessary. Split or damaged wood shall be removed, or repaired and/or re-secured to provide acceptable conditions.
  7. For anchors, pre-drill concrete and masonry units to prevent damage or cracking of the masonry. Consult fastener manufacturer's published guides. Damaged masonry shall be repaired, and fasteners shall be removed and re-installed in an acceptable location.
  8. Fastener spacing: Fasteners shall be staggered 1/3 the board width and installed within 6 inches of each end.
    - a. Bolts, adhesive anchors, wedge and sleeve anchors, and machine bolts securing nailers shall be spaced 48 inches on center, staggered and an additional fastener within 6 inches of each end of nailer to prevent boards from twisting at board joints.
    - b. Screws and 1/4 inch diameter anchors securing wood to concrete or masonry units shall be spaced 12 inches on center maximum, staggered, with fasteners installed at each end of nailer lengths to prevent wood from twisting at board joints.
    - c. Screws securing wood to wood shall be installed 12 inches apart, staggered, with two screws installed within 6 inches of each end of nailer lengths to prevent wood from twisting at board joints.
    - d. Self-drilling, and/or pre-drilled self-tapping screws securing wood to structural steel shall be spaced 12 inches apart, staggered, with one screw within 6 inches of each end of nailer lengths to prevent wood from twisting at board joints.
    - e. Nails securing wood to wood shall be spaced 12 inches apart, staggered, with two nails installed within 6 inches of each end of nailer lengths to prevent wood from twisting at board joints.
- E. Select fasteners of size and length that will not be exposed from the building interior and/or from the ground, or remove protruding fasteners, paint or finish to eliminate exposure.
- F. Thickness of wood nailers shall be flush with adjacent insulation and other materials. Additional fasteners shall be installed to ensure nailers are flush.
- G. Unless otherwise detailed, plywood used as blocking or shim shall be installed below dimensional lumber such that the fastener head terminates at the dimensional lumber

surface.

- H. Wood nailers at roof perimeters, expansion joints, roof area dividers, etc. shall not be less than 3 feet long.
- I. When multiple nailers are installed stacked two high or more, offset nailers no less than 12 inches such that joints at nailer end do not line-up vertically.
- J. Each end of nailers shall be fastened with additional fasteners to ensure a smooth transition at butted joints, and to prevent warping and/or twisting.
- K. Shims:
  - 1. The Contractor shall add plywood and lumber shims as required for the specified height and thickness.
  - 2. Shims shall make full contact with stacked rough carpentry. Partial shim contact, and small shim pieces spaced apart are not acceptable.
  - 3. Plywood used as blocking or shim shall be installed below dimensional lumber such that the fastener head terminates at the dimensional lumber surface.
- L. Wood Curbs:
  - 1. Adjust wood curbs to support rooftop piping, ducts, equipment, etc.
  - 2. Raise equipment to provide required flashing height for roofing.

### **3.04 CLEAN-UP**

- A. The Contractor shall ensure the site and building are cleaned to meet pre-construction conditions, as accepted by the Owner.
- B. The site and building shall be free of saw dust from pressure treated lumber, fasteners and other debris.
- C. Damages to the building, grounds, equipment and site shall be repaired or replaced by the Contractor to meet pre-construction conditions, as accepted by the Owner.

**END OF SECTION 06 10 00**

## SECTION 07 01 50

### PREPARATION FOR REROOFING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Preparatory work to be completed prior to roof installation including removal of polyurethane foam down to the existing coal tar pitch built-up roof membrane.

##### 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.
  - 1. Division 1, Section "Summary of Work".
  - 2. Division 3, Section "Lightweight Cellular Insulating Concrete.
  - 3. Division 6, Section "Rough Carpentry".
  - 4. Division 7, Section "Thermoplastic Single-Ply Roofing".
  - 5. Division 7, Section "Sheet Metal Flashing and Trim".
  - 6. Division 23, Section "Basic Mechanical Materials and Methods".
  - 7. Division 23, Section "Duct Insulation".
  - 8. Division 23, Section "Metal Ducts".
  - 9. Division 23, Section "Duct Accessories".
  - 10. Division 23, Section "Rooftop Air Conditioners".
  - 11. Division 26, Section "Basic Electrical Materials and Methods".
  - 12. Division 26, Section "Raceways and Boxes for Electrical Systems".

##### 1.03 DEFINITIONS

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

**1.04 EXISTING ROOF ASSEMBLY\***

A. Main Roof:

1. Roofing generally consists of sprayed polyurethane foam over metal flashings, membrane flashings and coal tar pitch built-up roof membrane adhered to poured concrete roof deck.
2. Existing slope is 1/8:12 in the structure.

\*Roof system composition is based on random sampling. Contractor is responsible for verification of roof system composition.

**1.05 SUBMITTALS**

- A. Refer to Section 01 33 00, Submittal Procedures for Submittals.
- B. Manufacturer's Product Data Sheets for all materials specified certifying material complies with this specification.
- C. Withdrawal test results.

**1.06 QUALITY ASSURANCE**

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

**1.07 SCHEDULING**

- A. Conduct demolition so that Owners operations will not be disrupted. Provide 72 hours notification to Owner of activities that will affect Owner's operations.

**1.08 WARRANTIES**

- A. Any damage to existing items under warranty shall be repaired/replaced with materials acceptable to the Warrantor.

**PART 2 PRODUCTS**

**2.01 ROOF DECK REPAIR MATERIALS**

- A. Concrete Patching: A two-component, polymer-modified, portland cement, fast-setting, non-sag mortar similar to *SikaTop 123 Plus®* by *Sika Corporation*. Material shall be used for the repair of spalls and voids in the concrete substrates and masonry substrates to create a surface that is flush with surrounding area. Allow to cure in accordance with manufacturers published data.

## **2.02 CHIMNEY CAP PARGE COAT REPAIR MATERIALS**

- A. Concrete Patching: Premixed, aggregate, portland cement, fast-setting mortar similar to *Quikrete Vinyl Concrete Patcher*. Material shall be used for the repair of spalls and voids in the concrete substrates and masonry substrates to create a surface that is flush with surrounding area. Allow to cure in accordance with manufacturers published data.

## **2.03 MISCELLANEOUS MATERIALS**

- A. Rust Converter: Synthetic emulsion applied to light rust areas, acts as primer upon drying.
- B. Primer: Quick-drying, oil-based primer for exterior use.
- C. Paint: Acrylic epoxy coating such as Devran 229H Acrylic Epoxy Gloss Coating as manufactured by Devoe, Acrylic Epoxy as manufactured by Duron, or M43Acrylic Epoxy Coating as manufactured by Benjamin Moore & Co. Color selected by Owner.
- D. Metal Sanitary Vent Pipe (Plumbing Stack) pipe extensions: To match the existing pipe.
- E. No-Hub Coupling for metal pipe extensions: Couplings to conform to CISIP 310 and comply with ASTM C 1277.
  - 1. Bands: Type 301 AISI Stainless Steel-Minimum tensile 165,000 psi.
  - 2. Screw Housing: Type 301 AISI Stainless Steel.
  - 3. Screw: Type 305 AISI Stainless Steel, 5/16 hex head slant shoulder.
  - 4. Shield: Type 301 AISI Stainless Steel-Bright annealed, Rockwell B-85 minimum.
  - 5. Gasket/Sealing Sleeve: Neoprene conforming to ASTM C 564.
- F. Walk Pads: Single-ply walk pads as recommended by the single-ply membrane manufacturer providing the roof system warranty.

## **2.04 COAL TAR PITCH BUILT-UP ROOF REPAIRS AND TEMPORARY ROOF**

- A. Torched Base Ply Membrane: Glass fiber and/or polyester reinforced ply sheet manufactured for torch application, meeting or exceeding requirements of ASTM D 6163, D 6164, Type I or II, Grade S, or ASTM D 6509.
  - 1. Firestone SBS Glass Torch Base.
  - 2. Derbigum Derbibase Ultra.
  - 3. GAF Ruberiod SBS Heat-Weld Smooth.
  - 4. Siplast Paradiene 20 TG.
  - 5. Soprema Sopralene Flam 180.
- B. Asphalt Primer: Shall meet ASTM D-41 requirements and be approved for intended use by membrane manufacturer.

## **2.05 MECHANICAL EQUIPMENT ACCESSORIES**

- A. Condensate Line: Match existing PVC tubing.
- B. Conduit and Pipe Supports: Specifically manufactured to provide support for roof-mounted conduit and pipes, adjustable height, polycarbonate rectangular base, such as Pillow Block Pipestand Model No. 16-Base Strut-12 as manufactured by Miro Industries, Inc. or alternates as approved by Engineer.
- C. Walk Pads: Single-ply walk pads as recommended by the single-ply membrane manufacturer providing the roof system warranty.

## **2.06 SKYLIGHT FALL PROTECTION**

- A. Skylight Fall Protection Guard: Galvanized metal screen and bracket that mounts to the existing skylight frame with no mechanical fasteners penetrating the skylight, meets OSHA 1910.23(a) (4) and 1926.50 (b) (4), withstands up to 450 pounds of dynamic force, such as ScreenGuard Skylight Protection System as manufactured by Garlock Safety Systems a Division of Plymouth Industries, Inc., 2601 Niagara Lane North, Plymouth, MN 55447, Ph: (877) 791-4446, Web: [www.garlocksafety.com](http://www.garlocksafety.com) or alternates as approved by Engineer.

## **2.07 BIRD CONTROL DEVICES**

- A. Basis of design- Nixalite Premium Bird Barrier Strip: A physical barrier system constructed of stainless steel strip and wire to prevent pest birds from landing, roosting or nesting on architectural surfaces. Manufacturer-Nixalite of America Inc., 1025 16th Avenue, PO Box 727, Dept.NI, East Moline, Illinois 61244; Ph: 800.624.1189.
  - 1. Wires: High grade stainless steel, 0.041" (1mm) diameter, full-hard spring temper, 250,000 lbs. / in. (44,645 kg/cm) tensile strength.
  - 2. Base Strip: High grade stainless steel, 0.25" wide x 0.02" thick (6.3mm x 0.5mm), full anneal for flexibility, easy strip cutting and surface shape memory.
  - 3. Strip Lengths: Available in 24" (61.0cm) and 48" (122.0cm) strip lengths.
  - 4. Nixalite Model S: 4" high (10.2cm), 4" wide (10.2cm) NO LESS THAN 120 wire points per foot. Full 180-degree wire coverage. For all bird species on all types of surfaces.
  - 5. Nixalite Mounting Hardware: mounting clips and fasteners designed to securely fasten the Nixalite Premium Bird Control to architectural surfaces.
    - a. To be made of stainless steel or non-corrosive materials.
    - b. Utilize mounting hardware that best suits the installation surface.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Survey existing conditions to determine extent of demolition.
- B. Record the conditions of items to be removed/reinstalled and items to be removed/salvaged.
- C. Contractor shall not remove any element that may result in structural deficiency or collapse of any part of the structure or adjacent structures during demolition.
- D. Contractor to inspect substrate for soundness and notify Engineer in writing of any deficiencies. Commencement of work signifies Contractor's acceptance of site conditions.

### **3.02 UTILITIES/SERVICES**

- A. Maintain existing utilities that are to remain in service and protect them against damage during selective site demolition unless authorized in writing by the Owner and authorities having jurisdiction.
  - 1. If utilities serving occupied portions of the site must be shut down, temporary services shall be provided.
  - 2. Provide 72 hours notice to Owner if shut down is required.
  - 3. Where services are to be removed, relocated or abandoned, provide necessary bypass connections to remaining occupied buildings and areas.

### **3.03 PREPARATION**

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

### **3.04 POLLUTION CONTROLS**

- A. Use water, mist, temporary enclosures and other suitable methods to limit the spread of dust and dirt. Comply with local EPA regulations.



1. Do not use water where damage may occur or where hazardous conditions would be created such as ice or flooding.

### **3.05 REMOVALS**

- A. Demolish and remove existing construction only to the extent required by new construction.
- B. Remove and dispose of all sprayed on polyurethane insulation, membrane flashings and sheet metal down to the existing coal tar pitch built-up roof membrane; repair existing coal tar pitch built-up roof membrane as needed to be watertight.
- C. Remove and discard, all existing metal conductor heads and downspouts, metal overflow scupper linings, metal counterflashings, etc.
- D. Remove abandoned supports and penetrations as designated by Owner and as indicated on Drawings.
- E. Remove or correct any obstruction which might interfere with the proper application of new materials.
- F. Lift or remove all existing equipment so that existing flashings can be totally removed and new flashings installed.
- G. Carefully relocate all electrical, miscellaneous wires, cables, gas lines, etc. as required to accomplish work specified herein. Accomplish such relocation without interrupting the service provided by these lines except as specifically authorized by the Owner. Become familiar with each line and the level of precaution necessary to relocate them or work around them. Upon completion of roofing work, relocate lines to their original positions and secure them as originally secured unless indicated otherwise in these specifications or on the project drawings.
- H. Remove debris from existing materials to provide clean, dry substrate.
- I. Remove and transport debris in a manner that will prevent damage/spills to adjacent buildings and areas.
- J. Dispose of demolished items and materials on a daily basis. On-site storage of removed items is not permitted.
- K. Transport demolished materials off-site and dispose of materials in a legal manner.
- L. Perform progress inspections to detect hazards resulting from demolition activities.

### **3.06 FLASHING HEIGHTS**

- A. Permanently raise roof top equipment as required to achieve 8 minimum flashing height.

- B. Extend all existing sanitary vents to height required by the applicable Plumbing Code, but no less than 8 inches and no more than 12 inches above the finished roof system.

**3.07 CONCRETE DECK REPAIR**

- A. Repair damaged and/or spalled concrete surface.
- B. Prepare substrates in strict accordance with manufacturer's requirements.
- C. Apply patching materials in strict accordance with manufacturer's installation requirements.
- D. After proper repair material curing, immediately install "Temporary Roof" membrane per Paragraph 3.08.

**3.08 CONCRETE PARGE COAT REPAIR/RESTORATION AT CHIMNEY CAP**

- A. Remove any loose concrete parge coat.
- B. Prepare substrates in strict accordance with manufacturer's requirements.
- C. Apply concrete parge coat patching materials in strict accordance with manufacturer's installation requirements.

**3.09 COAL TAR PITCH BUILT-UP ROOF REPAIRS AND TEMPORARY ROOF INSTALLATION**

- A. Prepare substrates in strict accordance with manufacturer's requirements.
- B. New membrane to extend a minimum of 6 inches onto the existing coal tar pitch membrane in all directions.
- C. Prime area to receive new membrane with asphalt primer. Allow primer to dry.
- D. Apply new membrane free of wrinkles, creases or fishmouths.
- E. Fully bond the base ply membrane to the prepared substrate. Apply membrane directly behind the torch applicator.

**3.10 INSTALLATION OF BIRD CONTROL DEVICES**

- A. Before bird control devices are installed, apply concrete parge coat patching materials per Paragraph 3.08.
- B. Install bird control devices in strict accordance with manufacturer's strip spacing and installation guidelines. Protect all surfaces.

- C. Protect the entire surface, not just the outside edges. NO GAPS allowed in the bird barrier strip coverage. Cut strips where necessary to fit the surface properly.
- D. Wires of bird barrier strip to extend over outside edge of surface by at least ¼ inch. Base strips to extend over any open end of surface by at least ½ inch.
- E. Fasten bird barrier strips to the surface with the mounting hardware recommended by the manufacturer. Follow hardware spacing guidelines and installation procedures supplied by manufacturer.

**3.11 SKYLIGHT FALL PROTECTION GUARD**

- A. Install the skylight fall protection screens per the manufacturer's requirements.

**3.12 CONDENSATE LINE SUPPORT INSTALLATION**

- A. At air conditioning units, provide new PVC condensate drain lines with integral P-trap as specified herein.
- B. Route condensate drain line to nearest roof drain scupper.
- C. Provide new condensate drain line supports and underlying walkpad at new and existing condensate drain line locations. Space drain line supports at 4 feet on center maximum. Provide one additional support at every turn and termination.
- D. Cut strips of walkway units for installation under condensate drain line supports from new full-size walkway units. Cut strips a minimum of 6 inches wider and longer than condensate drain line support.
- E. Adhere walkpad to membrane with adhesive or by heat welding.
- F. Provide metal brackets to secure drain line to support.

**3.13 SUPPORTING OF PIPES AND ELECTRICAL CONDUIT**

- A. Adjust specified pipe supports to proper height and install over existing membrane. After removal of existing membrane and installation of new membrane system, install walk pads over new membrane and adjust height of supports as needed.
- B. Supports to meet the following spacings:
  - 1. For pipe diameters of 2 to 5 inches, space supports at a maximum distance of 10 feet apart.
  - 2. For pipe diameters less than 2 inches, space supports at a maximum distance of 6 feet apart.
  - 3. Provide one additional support at every turn and termination.

- C. Cut strips of walkway units for installation under pipe supports from new full-size walkway units. Cut strips a minimum of 6 inches wider and longer than pipe support.
- D. Adhere walkpad to membrane with adhesive or by heat welding.
- E. Secure pipe or conduit to support if no integral means of support is present.

**3.14 METAL SANITARY VENT PIPE (PLUMBING STACK) EXTENSION INSTALLATION**

- A. Extend all existing sanitary vents to height required by the applicable Plumbing Code, but no less than 8 inches above the finished roof system.
- B. Preparation:
  - 1. Remove existing flashing from plumbing vent piping to extent required to enable installation of new plumbing vent pipe extensions and completion of flashings.
  - 2. Clean plumbing vent piping to ensure that joint surfaces are clean, dry, and free from contamination including dirt, oils, grease, tar, wax, rust, and other substances that may inhibit adhesive or sealant performance.
- C. Metal pipe extensions to match the existing pipe.
  - 1. Follow installation procedures from the no-hub coupling manufacturer.

**3.15 PAINTING OF ROOF-MOUNTED EQUIPMENT AND EXPOSED STEEL**

- A. At rusted equipment, step over ladders, and exposed steel, finish as specified herein.
  - 1. Wire brush to remove loose rust, leaving light rust in place. Remove loose paint.
  - 2. Follow manufacturer's application requirements.
  - 3. Allow materials to dry between applications.
  - 4. Apply rust converter to all rusted surfaces.
  - 5. Apply primer to all non-rusted surfaces.
  - 6. Apply two coats of paint to all surfaces in a color to suit Owner.

**3.16 CLEANING**

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

**END OF SECTION 07 01 50**

## SECTION 07 54 00

### THERMOPLASTIC SINGLE-PLY ROOFING

#### **PART 1 GENERAL**

##### **1.01 WORK INCLUDED**

- A. Install a fully adhered felt back thermoplastic membrane and flashings to provide a permanently watertight system.

##### **1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:
  - 1. Division 1, Section "Summary of Work".
  - 2. Division 3, Section "Lightweight Cellular Insulating Concrete.
  - 3. Division 6, Section "Rough Carpentry".
  - 4. Division 7, Section "Preparation for Reroofing".
  - 5. Division 7, Section "Sheet Metal Flashing and Trim".

##### **1.03 REFERENCES**

- A. Refer to the following references, current edition for specification compliance:
  - 1. NC. State Building Code.
  - 2. American Society of Testing Materials (ASTM).
  - 3. National Roofing Contractors Association (NRCA).
  - 4. Underwriters Laboratory (UL).
  - 5. FM Global.
  - 6. Single Ply Roofing Institute.

##### **1.04 SUBMITTALS**

- A. Refer to Section 01 33 00-Submittal Procedures for Submittals.
- B. Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Manufacturer's Product Data Sheets for all materials specified certifying material complies with all specified requirements.
- D. Submit documentation of approved, tested roof system to meet the specified requirements for the following:
  - 1. Wind uplift pressures.
  - 2. UL Fire Resistance Rating.

##### **1.05 DELIVERY, STORAGE AND HANDLING**

- A. All products delivered to the job site shall be in the original unopened containers or wrappings bearing all seals and approvals.

- B. Handle all materials to prevent damage. Place all materials on pallets and fully protect from moisture.
- C. Membrane rolls shall be stored lying down on pallets and fully protected from the weather with clean canvas tarpaulins. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions that may affect the ease of membrane weldability.
- D. All adhesives shall be stored at temperatures approved for the product.
- E. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/supplier.
- F. All materials which are determined to be damaged by the Engineer or membrane manufacturer are to be removed from the job site and replaced at no cost to the Owner.

**1.06 PROJECT CONDITIONS**

- A. Roofing shall not be applied during precipitation. Contractor assumes all responsibility for starting installation in the event there is a probability of precipitation occurring during application.
- B. Only as much of the new roofing as can be made weathertight each day, including all flashing and detail work, shall be installed. All seams shall be cleaned and heat welded before leaving the job site that day.
- C. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all risks.
- D. All surfaces to receive new insulation, membrane or flashings shall be dry. Should surface moisture occur, the Applicator shall provide the necessary equipment to dry the surface prior to application.
- E. All new and temporary construction, including equipment and accessories, shall be secured in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.
- F. Uninterrupted waterstops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work. Waterstops shall not emit dangerous or unsafe fumes and shall not remain in contact with the finished roof as the installation progresses. Contaminated membrane shall be replaced at no cost to the Owner.
- G. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, the Applicator shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. A protection layer of plywood over insulation board shall be provided for all new and existing roof areas that receive rooftop traffic during construction.
- H. Prior to and during application, all dirt, debris and dust shall be removed from surfaces, either by vacuuming, sweeping, blowing with compressed air and/or similar methods.

- I. Contaminants, such as grease, fats, oils, and solvents, shall not be allowed to come into contact with the roofing membrane. All rooftop contamination that is anticipated or that is occurring shall be reported to the Engineer and membrane manufacturer to determine the corrective steps to be taken.
- J. If any unusual or concealed condition is discovered, the contractor shall stop work, notify Owner of such condition immediately, and in writing within 24 hours.
- K. The roofing membrane shall not be installed under the following conditions without consulting the membrane manufacturer's technical department for precautionary steps:
  - 1. The roof assembly permits interior air to pressurize the membrane underside.
  - 2. Any exterior wall has 10% or more of the surface area comprised of opening doors or windows.
  - 3. The wall/deck intersection permits air entry into the wall flashing area.
- L. Precautions shall be taken when using membrane adhesives at or near rooftop vents or air intakes. Adhesive odors could enter the building. Coordinate the operation of vents and air intakes in such a manner as to avoid the intake of adhesive odor while ventilating the building. Keep lids on unused cans at all times.

## **1.07 QUALITY ASSURANCE**

- A. Manufacturer Requirements:
  - 1. Manufacturer must have written contractor/installer approval program.
  - 2. The product must have a continuous manufacturing history with the current product formulation of no less than ten (10) years in the United States of America.
  - 3. Products manufactured by other manufacturers and private labeled are not acceptable.
  - 4. See materials section for general product description and specified requirements.
- B. Contractor Requirements:
  - 1. This roofing system shall be applied only by a Contractor authorized by the membrane manufacturer prior to bid.
  - 2. Application of the roofing system shall be accomplished by a primary roofing contractor, his roofing foreman, and sufficient applicator technicians who all have been trained and approved by the manufacturer of the single ply roofing system. Contractor to submit evidence of qualification from the manufacturer.
- C. Upon completion of the installation an inspection shall be made by a representative of the membrane manufacturer to review the installed roof system and list all deficiencies.
- D. There shall be no deviation made from the Contract Documents or the approved shop drawings without prior written approval by the Engineer.
- E. All work shall be completed by personnel trained and authorized by the membrane manufacturer.
- F. Contractor to provide manufacturer written verification indicating all seams have been probed and are watertight.

G. Install roofing system to meet UL 790 Class A Fire Rating.

H. Wind Design:

1. Install roofing system to meet or exceed the requirements of the current adopted version of ASCE-7, and shall be an approved assembly tested to the wind uplift pressures listed below:
2. Low slope:
  - a. Field of Roof: - 19.1 psf.
  - b. Perimeter of Roof: - 32.1 psf.
  - c. Corner of Roof: - 48.3 psf.

## **1.08 WARRANTIES**

- A. Manufacturer's Guarantee: Manufacturer's standard form, non pro-rated, without monetary limitation or deductibles, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks or breaches in the primary roof membrane causing moisture to enter the substrate below (even if visible leaks are not observed inside the facility). Warranties requiring the Owner's signature will not be acceptable.
1. Warranty to include but not be limited to membrane, insulation, adhesives, fasteners, sealants, flashings, and polymer clad sheet metal, etc.
  2. Warranty Period: Twenty years from date of Substantial Completion.
  3. Manufacturer's Representative shall attend a post-construction field inspection no earlier than twenty- three (23) months, and no later than twenty-four (24) months after the Date of Substantial Completion. Submit a written report within seven (7) days of this visit to the Engineer listing observations, conditions and any recommended repairs or remedial action.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURER**

A. Membrane materials shall be manufactured by the following:

1. Sika Sarnafil.
2. Fibertite.
3. Carlisle.
4. Soprema.
5. Flex Membrane International.

### **2.02 MEMBRANE MATERIALS**

- A. Roof Membrane: Energy Star rated sheet, reinforced with either polyester fabric or fiberglass, with felt backing heat-bonded to the back side of the membrane with a weldable selvage edge.
1. Color: color to be determined by Owner from manufacturer's standard Energy Star color selection.
  2. 45 mil nominal thickness thermoplastic membrane with a 4-oz. per sq. yd. non – woven polyester felt, heat bonded to the back side of the membrane, meeting ASTM D6754-02



3. 60 mil nominal thickness thermoplastic membrane with a fiberglass reinforcement, lacquer coating and a factory applied 9 oz. minimum felt backing, meeting ASTM D-4434.

B. Membrane Components:

1. Membrane Adhesive: Shall be membrane manufacturer's adhesive. Water based adhesive shall not be utilized in temperatures below 40 degrees F.
2. Coverstrip: Shall be 8 inches wide pre-cut polyester reinforced flashing strip.
3. Membrane Fasteners and Plates/Attachment Bar: Shall be approved and provided by membrane manufacturer for the deck type and membrane configuration.
  - a. Fastener shall be phillips head, carbon steel fastener with corrosion resistant coating designed for use with specified plate meeting the following minimum requirements:
    - i. Shank diameter: .21 inches
    - ii. Thread diameter: .26 inches
    - iii. Head diameter: .435"
    - iv. Thread density: 13 turns per inch.
  - b. Plate shall be 18 gauge, 1-1/2 inch by 2-3/4 inch high strength, linear steel plate with an AZ 55 galvalume coating.
  - c. Attachment Bar: Shall be "U"-shaped, roll formed 14 gauge galvanized steel bar with holes punched 1inch on center and be manufactured and supplied by the membrane Manufacturer.

**2.03 RELATED MATERIALS**

- A. Flashing/Stripping Membrane: Shall be non feltback, thermoplastic membrane reinforced with fiberglass.
- B. Flashing Adhesive: Shall be membrane manufacturer's adhesive.
- C. T-joint Patch: Shall be membrane manufacturer's circular patch welded over T-joints formed by overlapping thick membranes.
- D. Corner Flashing: Shall be membrane manufacturer's pre-formed inside and outside flashing corners that are heat-welded to membrane or polymer clad metal base flashings.
- E. Pipe Flashing: Shall be membrane manufacturer's pre-formed pipe boot flashing that is heat-welded to membrane and secured with a stainless steel draw band and sealant.
- F. Termination Bar: Shall be manufacturer's 1/8 inch by 1 inch mill finish extruded aluminum bar with pre-punched slotted holes.
- G. Counter Flashing Bar: Shall be a prefabricated extruded aluminum metal counter flashing and termination bar. 0.10 inch-0.12 inch thick bar with 2-1/4 inches profile, pre-drilled holes 8 inches on center and sealant kick out at top edge.
- H. Sealant: Shall be manufacturer's multi-purpose sealant.
- I. Fasteners:
  1. Flashing Membrane Termination Screws: #12 hot dipped galvanized or stainless steel hex or pan head screws with length to penetrate substrate a minimum of 1-1/2 inch.

2. Concrete and Masonry Flashing Membrane Termination Anchors:
  - a. ¼ inch diameter metal based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1-1/2 inches.
  - b. Masonry screws approved by membrane manufacturer, 1/4 inch minimum diameter, corrosion resistant, with Phillips flat head. Length to provide minimum 1-1/2 inches embedment into substrate.
- J. Primary Membrane Cleaner: Shall be a high quality solvent cleaner provided by membrane manufacturer and approved by engineer for use as a general membrane cleaner.
- K. Pre-weld Cleaner: Shall be a high quality solvent based seam cleaner with moderate evaporation rate provided by membrane manufacturer.
- L. Walkway Pad: Shall be walkway pad by manufacturer of membrane.
- M. Polymer Clad Metal: Refer to Section 07 62 00-Sheet Metal Flashing and Trim.

## **PART 3 EXECUTION**

### **3.01 INSPECTION**

- A. A pre-job conference including the Engineer, Contractor, and the membrane manufacturer's representative shall be conducted prior to the application of the roofing.
- B. Contractor shall verify that work penetrating the roof deck or work which may otherwise affect the roofing has been properly completed.
- C. Contractor shall inspect lightweight insulating concrete substrate prior to application of membrane. Commencement of work signifies Contractor's acceptance of substrate. Any defects in roofing work resulting from such accepted substrates shall be corrected to Owner's satisfaction at no additional expense.

### **3.02 SUBSTRATE PREPARATION**

- A. General. All surfaces shall be swept or vacuumed prior to commencement of roofing.
- B. Contractor shall coordinate closure of air intakes prior to application of primer and cold adhesives.
- C. Where walls, curbs, expansion joints, etc. present an unacceptable substrate for flashing, a layer of non-combustible overlayment insulation shall be fastened to provide a suitable substrate for flashing.
- D. Any deteriorated substrate shall be repaired.
- E. Beginning installation means acceptance of prepared substrate.

### **3.03 MEMBRANE INSTALLATION**

- A. The surface of the substrate shall be inspected prior to installation of the roof membrane. The substrate shall be clean, dry, free from debris and smooth with no surface roughness or contamination.

- B. Over the properly installed and prepared substrate, membrane adhesive shall be applied using rollers. The adhesive shall be applied to the substrate at a rate according to the membrane manufacturer's requirements. The adhesive shall be applied in smooth, even coatings with no gaps, globs, puddles or similar inconsistencies. Only an area which can be completely covered in the same day's operations shall be coated with adhesive.
- C. The roof membrane is unrolled immediately into a second layer of wet adhesive. Adjacent to that first installed roll of membrane, another second layer of wet adhesive is applied and the second roll of membrane is immediately unrolled into it, overlapping the first roll by 3 inches (75 mm). This process is repeated throughout the roof area. Immediately after application into adhesive, each roll shall be pressed firmly in place with a water-filled, foam-covered lawn roller by frequent rolling in two directions. **Do not allow the second application of adhesive to dry at all.** The amount of membrane that can be coated with adhesive before rolling into substrate will be determined by ambient temperature, humidity and work crew.
  - 1. Adhesive application rates shall comply with the manufacturer's published requirements.
  - 2. The Applicator shall count the amount of pails of adhesive used per area per day to verify conformance to the specified adhesive rate.
  - 3. No adhesive shall be applied in seam areas. All membrane shall be applied in the same manner.
- D. Weld membrane coverstrips at all feltback membrane seams without a factory selvage edge.
- E. Terminate membrane at all walls as shown in the contract drawings.
  - 1. Wood Substrate: Membrane shall be turned up wall one inch and mechanically terminated using approved screws eight (8) inches on center with a termination bar.
  - 2. Concrete/Masonry Substrate: Membrane shall be turned up wall one inch and mechanically terminated using approved anchors eight (8) inches on center with a termination bar.

### 3.04 PVC MEMBRANE FLASHING INSTALLATION

- A. General
  - 1. All flashings shall be installed concurrently with the roof membrane as the job progresses.
  - 2. No temporary flashings shall be allowed without the prior written approval of the Engineer and Manufacturer. Approval shall only be for specific locations on specific dates. If any water is allowed to enter under the newly completed roofing, the affected area shall be removed and replaced at the Contractor's expense.
  - 3. Seams shall not be "taped" as temporary measure but shall be fully completed before the end of each day.
  - 4. Flashing shall be adhered to compatible, dry, smooth, and solvent-resistant surfaces.
  - 5. Where substrates are incompatible with adhesives and PVC materials, the Contractor shall remove the incompatible materials and replace it with a compatible substrate, or install compatible PVC flashing materials.
  - 6. Use caution to ensure adhesive fumes are not drawn into the building.

- B. Adhesive for Flashing Membrane
  - 1. Over the properly installed and prepared flashing substrate, flashing adhesive shall be applied according to instructions found on the Product Data Sheet. The membrane adhesive shall be applied in smooth, even coats with no gaps, globs or similar inconsistencies.
  - 2. Only an area which can be completely covered in the same day's operations shall be flashed. The bonded sheet shall be pressed firmly in place with a hand roller.
  - 3. No adhesive shall be applied in seam areas that are to be welded.
- C. All flashings shall mechanically terminated a minimum of 8 inches above the finished roofing surface using approved fasteners and counter flashing bar unless otherwise indicated in the Contract Drawings. Flashing heights less than 8 inches shall be accepted in writing by the Manufacturer's Technical Department.
- D. All flashing membranes shall be consistently adhered to substrates. All interior and exterior corners and miters shall be cut and hot-air welded into place. No bitumen shall be in contact with the (roof) membrane.
- E. All flashings shall be hot-air welded at their joints and at their connections with the (roof) membrane.
- F. All flashings that exceed 30 inches (0.75 m) in height shall receive additional securement. Consult Manufacturer's Technical Department for securement methods.
- G. Corners shall be flashed using the membrane manufacturer's pre-formed corners.
- H. Polymer Clad sheet metal incorporated into the roofing system shall be sealed off with a heat welded stripping ply. The stripping ply shall extend four inches beyond sheet metal onto roof membrane and fit closely to edge of sheet metal.
- I. Soil Pipe/Pipe Penetrations-Minimum 2" Diameter:
  - 1. Provide field wrapped pipe penetration flashing or manufacturer's pre-fabricated pipe boot as shown in detail drawing.
  - 2. Apply aluminum tape to penetration if asphalt contamination is present.
  - 3. Extend existing pipe to obtain a minimum 8 inches finished flashing height.
  - 4. Cut existing pipe to obtain a maximum 12 inches finished flashing height.
  - 5. Horizontal flashing membrane shall be hot-air welded a minimum of four inches onto the membrane.
  - 6. Vertical flashing membrane shall be fully adhered to pipe penetration and extend a minimum of 1.5 inches horizontal at the base of penetration. Hot-air weld vertical flashing membrane to horizontal flashing membrane.
  - 7. Install stainless steel draw band and sealant or hot-air weld flashing cap to terminate top edge of pipe flashing.

### **3.05 FABRIC-REINFORCED FLUID-APPLIED FLASHING INSTALLATION**

- A. General
  - 1. All flashings shall be installed concurrently with the roof membrane as the job progresses.
  - 2. No temporary flashings shall be allowed without the prior written approval of the Engineer and Manufacturer. Approval shall only be for specific locations on

specific dates. If any water is allowed to enter under the newly completed roofing, the affected area shall be removed and replaced at the Contractor's expense.

3. Flashing shall be adhered to compatible, dry, smooth, and solvent-resistant surfaces.
  4. Where substrates are incompatible with fluid applied flashing materials, the Contractor shall remove the incompatible materials.
- B. All fluid-applied flashings shall be terminated a minimum of 8 inches above the finished roofing surface unless otherwise indicated in the Contract Drawings. Flashing heights less than 8 inches shall be accepted in writing by the Manufacturer's Technical Department.
- C. All fluid-applied flashing shall be consistently adhered to substrates.
- D. Pipe Penetrations Less Than 2" Diameter:
1. Fluid-Applied Flashing System: Shall be single-ply membrane manufacturer's polyurethane, polyether or PMMA based resin with polyester fleece flashing system.
  2. Prepare and prime substrates as required by the single-ply membrane manufacturer and install fluid-applied flashing as shown in detail drawing.

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

A. General

1. All seams shall be hot-air welded. Seam overlaps should be 3 inches (75 mm) wide when automatic machine-welding and 4 inches (100 mm) wide when hand-welding, except for certain details.
2. Welding equipment shall be provided by or approved by the membrane manufacturer. All mechanics intending to use the equipment shall have successfully completed a training course provided by a membrane manufacturer's technical representative prior to welding.
3. All membrane to be welded shall be clean and dry.

B. Hand-Welding

1. Hand-welded seams shall be completed in two stages. Hot-air welding equipment shall be allowed to warm up for at least one minute prior to welding.
2. The back edge of the seam shall be welded with a narrow but continuous weld to prevent loss of hot air during the final welding.
3. The nozzle shall be inserted into the seam at a 45 degree angle to the edge of the membrane. Once the proper welding temperature has been reached and the membrane begins to "flow," the hand roller is positioned perpendicular to the nozzle and pressed lightly. For straight seams, the 1½ inch (40 mm) wide nozzle is recommended for use. For corners and compound connections, the ¾ inch (20 mm) wide nozzle shall be used.

C. Machine Welding

1. Machine welded seams are achieved by the use of automatic welding equipment. When using this equipment, instructions from the manufacturer shall be followed and local codes for electric supply, grounding and over current protection

observed. Dedicated circuit house power or a dedicated portable generator is recommended. No other equipment shall be operated off the generator.

2. Metal tracks may be used over the deck membrane and under the machine welder to minimize or eliminate wrinkles.

D. Quality Control of Welded Seams

1. The Applicator shall check all welded seams for continuity using a rounded screwdriver. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark grey material from the underside of the top membrane. On-site evaluation of welded seams shall be made daily by the Applicator to locations as directed by the Engineer or membrane manufacturer's representative. One inch (25 mm) wide cross-section samples of welded seams shall be taken at least three times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Each test cut shall be patched by the Applicator at no extra cost to the Owner.

**3.07 WALKWAY PAD INSTALLATION**

- A. Install walkway pads at roof access door entrance, bottom of ladders, under ladder legs, and on all four sides of curb mounted HVAC equipment.
- B. Install 10" x 10" walkway pads under all pipe supports.
- C. Roofing membrane to receive walkway pad shall be clean and dry.
- D. Place chalk lines on sheet to indicate location of walkway.
- E. If adhered, apply a continuous coat of membrane adhesive to the sheet and the back of walkway pad in accordance with membrane manufacturer's technical requirements and press walkway pad into place with a water-filled, foam-covered lawn roller.
- F. If hot air welded, clean the membrane in areas to be welded. Hot-air weld the entire perimeter of the walkway pad to the roofing membrane.
- G. Check all welds with a rounded screwdriver. Re-weld any inconsistencies.
- H. Important: Check all existing membrane seams that are to be covered by walkway pad with rounded screwdriver and re-weld any inconsistencies before walkway pad installation.

**3.08 TEMPORARY CUT-OFF**

- A. All flashings shall be installed concurrently, with the membrane in order to maintain a watertight condition as the work progresses.
- B. When a break in the day's work occurs in the central area of the project install a temporary watertight seal. An 8 inch strip of flashing membrane shall be welded 4 inches to the new field membrane. The remaining 4 inches of flashing membrane shall be sealed to the deck and/or the substrate so that water will not be allowed to travel under the new or existing membrane. The edge of the membrane shall be sealed in a continuous heavy application of pourable sealer of 6 inch width. When work resumes, the contaminated membrane shall be removed and disposed of. None of these materials shall be reused in

the new work.

- C. If inclement weather occurs while a temporary water stop is in place, the Contractor shall provide the labor necessary to monitor the situation to maintain a watertight condition.
- D. If any water is allowed to enter under the newly-completed system, the affected area shall be removed and replaced at the Contractor's expense.

**3.09 CLEANING AND PROTECTION**

- A. The Contractor shall be responsible for protecting the roof from construction related damages during the Work.
- B. The Contractor shall ensure trash and debris is removed from the roof daily.
- C. Metal scraps, nails, screws and other sharp damaging debris shall be kept off of the roof membrane surface during construction.
- D. The Contractor shall clean off/remove excess adhesive, sealant, stains and residue on the membrane and flashing surfaces.
- E. The Contractor shall repair or remove and replace damaged membrane, flashings and other membrane components. Repairs shall be approved by the Engineer and be in accordance with the membrane manufacturers repair instruction to comply with the specified warranty.
- F. The Contractor shall remove temporary coverings and masking protection from adjacent work areas upon completion.

**END OF SECTION 07 54 00**

## SECTION 07 62 00

### SHEET METAL FLASHING AND TRIM

#### **PART 1 GENERAL**

##### **1.01 WORK INCLUDED**

- A. Fabrication and installation of new sheet metal flashings and trim to provide a permanently watertight condition.

##### **1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:
  - 1. Division 1, Section "Summary of Work".
  - 2. Division 3, Section "Lightweight Cellular Insulating Concrete.
  - 3. Division 6, Section "Rough Carpentry".
  - 4. Division 7, Section "Thermoplastic Single-Ply Roofing".

##### **1.03 REFERENCES**

- A. Refer to the following references for specification compliance:
  - 1. NC State Building Code.
  - 2. American Society for Testing and Materials (ASTM).
  - 3. National Roofing Contractors Association (NRCA).
  - 4. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
  - 5. ANSI/SPRI ES-1.

##### **1.04 SUBMITTALS**

- A. Refer to Section 01 33 00-Product Submittals for Submittals.
- B. Manufacturer's Product Data Sheets for all materials specified certifying material complies with all specified requirements.
- C. Pre-finished sheet metal and sealant color chart.
- D. Shop Drawings for any transitions and/or terminations not depicted in Contract Drawings.

##### **1.05 QUALITY ASSURANCE**

- A. Installation shall comply with the Contract Drawings and current SMACNA Architectural Sheet Metal Manual.
- B. Ensure work is free of leaks in all weather conditions.



- C. Fabricate metal edge and coping in accordance with ANSI/SPRI ES-1 requirements.
- D. Workmanship shall be first-class in every respect. The sheet metal work shall be assembled and secured in accordance with these specifications, the manufacturer's requirements and referenced standards.

**1.06 DELIVERY, STORAGE AND HANDLING**

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

**1.07 PROJECT CONDITIONS**

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

**1.08 WARRANTY**

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

**PART 2 PRODUCTS**

**2.01 PRE-FINISHED STEEL**

- A. ASTM A 653, AISI G90 zinc coated sheets, commercial steel, extra smooth, primed and finished on one side with Kynar/Hylar based fluoropolymer coating of 1.0 mil total dry film thickness, and on the reverse side, with a wash coat of 0.3 to 0.4 mil dry film thickness. A strippable plastic film should protect the finish during fabrication and installation. Manufacturer's standard color to be selected by Owner.
  - 1. 22 gauge.
    - a. Door Threshold Flashing.
  - 2. 24 gauge.
    - a. Slip Flashing/Receiver Flashing/Counterflashing.
    - b. Conductor Heads.
    - c. Downspouts.

d. Downspout Outlets.

**2.02 STAINLESS STEEL**

- A. 26 gauge, Type 304 as tested in accordance with ASTM A 167.
  - 1. Equipment Curb Cover.
  - 2. Watertight Umbrella/Skirt.
  - 3. Multiple-pipe Penetration Hood Cover.

**2.03 GALVANIZED STEEL**

- A. ASTM, A 653, AISI G90 galvanized steel, mill finish.
  - 1. Downspout Hangers: Clad in downspout material.
    - a. 1/16" x 1".

**2.04 POLYMER CLAD METAL (PVC)**

- A. Polymer Clad Metal – Heat-weldable, 24 gauge, AISI G90 galvanized steel sheet with a 20 mil unsupported thermoplastic membrane coating to match the flashing membrane composition laminated on one side. Polymer-Clad metal shall be manufactured by, and included in the warranty of, the single-ply membrane Manufacturer. Color shall be selected by Owner.
  - 1. Flange/Sleeve.
  - 2. Primary Scupper Liner.
  - 3. Overflow Scupper Liner.
  - 4. Multiple-pipe Penetration Hood Base.

**2.05 FASTENERS**

- A. Roofing Nails: 11 or 12 gauge double hot dipped galvanized or stainless steel ring shank roofing nails with diamond point, minimum 3/8" diameter head and 1-1/4" length.
- B. Screws: #12 hot dipped galvanized or stainless steel hex or pan head screws with length to penetrate substrate a minimum of 1-1/2".
- C. Concrete and Masonry Anchors: 1/4" diameter metal based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1-1/2".
- D. Washers: Shall be stainless steel with neoprene gasket backing. Shall be 9/16" diameter for use with #12 screws and 5/8" diameter for use with 1/4" diameter concrete and masonry anchors.
- E. Rivets: #44 stainless steel rivets with stainless steel mandrel. Length of rivet to properly fasten particular sheet metal components. Rivets shall be factory painted to match adjacent sheet metal.

## **2.06 RELATED MATERIALS**

- A. Sheet Metal Underlayment: 20 mil corrosion resistant, waterproof PVC flashing.
- B. Compressible Insulation: Un-faced friction-fit fiberglass building insulation, cut to fit from 3-1/2"x 15"x48" batts.
- C. PVC Flashing: 20 mil corrosion resistant, waterproof PVC flashing.
- D. Polyurethane Sealant: One-component elastomeric gun grade polyurethane sealant conforming to ASTM C 920, Type S, Grade NS, Class 25, and use NT, M, A, G, or O as required by substrate conditions.. Color to match adjacent materials.
- E. Solder: 20-80 tin-lead alloy conforming to ASTM B32.
- F. Sealant Tape: Minimum 1/2" wide non-skinning butyl sealant tape.
- G. Aluminum Tape: Pressure-sensitive, 2" wide aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as bond breaker under the metal edge cover plates.
- H. Backer Rod: Closed-cell polyethylene or polyurethane rods sized approximately 25% larger than joint opening.
- I. Non-Shrink Grout: High early strength, non-rusting non-shrink grout conforming to ASTM C 1107 Grade C (modified for rapid-setting grout) such as 747 Rapid Setting Grout as manufactured by ThoRoc (ChemRex), Multi Purpose Non-Shrink Grout as manufactured by US Mix, or Sikagrout 212 as manufactured by Sika.
- J. Pourable Sealer: Two part pourable polyurethane sealant conforming to ASTM D 429, and designed to seal around penetrations.
- K. Paint: Shall be acrylic epoxy coating such as Devran 229H Acrylic Epoxy Gloss Coating as manufactured by Devoe, Acrylic Epoxy as manufactured by Duron, or M43 Acrylic Epoxy Coating as manufactured by Benjamin Moore & Co. Color shall be tinted to match the adjacent sheet metal flashing.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Coordinate with other work for correct sequencing of items which make up the entire system.
- B. Ensure substrates are installed, secured and modified to accommodate sheet metal flashings.

- C. Deficiencies associated with the sheet metal substrates shall be reported to Engineer before beginning sheet metal work. All such deficiencies shall be corrected before installing sheet metal flashings.

### **3.02 INSTALLATION**

#### **A. General:**

1. All joints to be locked and sealed or soldered.
2. Provide for thermal movement (expansion and contraction) of all exposed sheet metal.
3. Where dissimilar metals contact, galvanic action shall be prevented by means of heavy coat of asphalt paint.
4. All metal flanges shall be installed on top of membrane and adhered as indicated in detail drawings. Metal flanges connected to the roof shall be installed per membrane manufacturer's specifications and the requirements herein.
5. Various sheet metal sections shall be uniform with corners, joints and angles mitered, sealed and secured.
6. Exposed edges shall be returned (hemmed); both for strength and appearance, and sheet metal shall be fitted closely and neatly.
7. Provide cleats or stiffeners and other reinforcements to make all sections rigid and substantial.
8. Sheet metal shall be fabricated, supported, cleated, fastened and joined to prevent warping, "oil canning", and buckling.
9. All sheet metal details shall provide for redundancy including but not limited to sheet metal underlayment and/or sealants. This secondary protection shall be installed, sealed and lapped to ensure a redundant layer of protection will shed moisture infiltration in the sheet metal fails.

#### **B. Fasteners: Shall be size and type required.**

1. All fasteners to be rust resistant and compatible with materials to be joined.
2. All exposed fasteners shall be stainless steel screws with washers fastened through 5/16" predrilled oversized holes.
3. All exposed fasteners into concrete or masonry shall be metal based expansion anchor with stainless steel pin with washers fastened through 11/32" predrilled oversized holes.
4. All exposed fasteners shall have factory painted heads to match the sheet metal color.
5. Exposed horizontal surface fasteners are not acceptable.

#### **C. Slip Flashing for Curbs:**

1. Fabricate slip flashing at curbs as shown in detail drawings in 10' lengths.
2. Slip flashing shall extend a minimum of 4 inches below base flashing termination and shall fit tightly against curb.
3. Secure slip flashing 12 inches on center or a minimum of two fasteners per side of the curb.

4. Notch and lap ends of adjoining sections not less than 4 inches; apply sealant tape between sections.
5. Lap miters at corners a minimum of 1 inch and apply sealant between laps. Rivet at 2" on center.

D. Surface Mounted Counterflashing:

1. Fabricate counter flashing as shown in detail drawings in 10' lengths.
2. Install flashing surface mounted at 8" on center.
3. Install sealant in kick-out and manually tool concave to ensure proper adhesion and slope to shed water as indicated in detail drawings.
4. Counterflashing shall extend a minimum of 4 inches below base flashing termination.
5. Notch and lap ends of adjoining sheet metal sections not less than 4", apply sealant between sections.

E. Equipment Support:

1. Wrap top of equipment support with sheet metal underlayment to extend two inches below base flashing termination.
2. Fabricate equipment support cap at curbs as shown in detail drawings in one continuous piece of sheet metal and secure at twelve inches on center.

F. Multiple Pipe Penetrations:

1. Fabricate pitch pan, pipe enclosure flashing, and closure cap as shown in detail drawings. Refer to SMACNA Architectural Sheet Metal Manual Figure 4-15A.
2. Size pitch pan minimum 2" larger than the penetration on all sides. Provide a 4" minimum flange and double walls with minimum depth of 6".
3. Set flange of pitch pan in full bead of cut-off mastic and strip-in flange with Flashing ply as specified.
4. Install 2" wide aluminum tape around all sides of pitch pan extending 1/2" above top edge.
5. Fill pitch pan with non-shrink grout to a depth of 2" from the top of the tape.
6. Fill pitch pan with pourable sealer to the top of the tape. Slope to shed water.
7. Secure pipe enclosure flashing and cap as indicated in detail drawings.
8. Clean and solder all stainless steel seams.

G. Through-Wall Primary Scupper

1. Fabricate thru-wall scupper flange, liner, and faceplate as shown in detail drawings. Scupper dimensions shall match the existing.
2. Hot-air weld stripping membrane at seams of the flange and liner.
3. Install flashing membrane through scupper opening prior to installing new scupper to seal wall cavity.
4. Provide flange which extends a minimum of 3" on top and sides of scupper, and extends a minimum of 4" out onto the horizontal membrane. Mechanically

- fasten the horizontal flange into structural deck 8" on center or a minimum of two fasteners per scupper with approved fasteners.
5. Strip-in flange as specified in Contract Drawings.
  6. Provide faceplate which extends 1.5" around the entire scupper and secure to wall substrate with four fasteners. Set faceplate in a bead of sealant.
  7. Scupper Liner shall extend 1" beyond the exterior wall face and lock onto faceplate.
  8. Conductor Heads:
    - a. Fabricate conductor heads as shown in detail drawings. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-25F and Figure 1-27A.
    - b. All joints to be sealed and pop riveted. Install beads of sealant inside conductor head at all seams and rivets.
    - c. Back edge of conductor head shall be locked to rectangular through-wall scupper only. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-26A, and Detail 2.
    - d. Top edge of overflow opening in conductor head shall be 1" below scupper.

#### H. Through-Wall Overflow Scupper

1. Fabricate thru-wall scupper flange and liner as shown in detail drawings. Scuppers dimensions shall match the existing.
2. Install flashing membrane through scupper opening prior to installing new scupper to seal wall cavity.
3. Provide flange which extends a minimum of 3" around scupper opening, and extends a minimum of 4" out onto the horizontal membrane. Mechanically fasten the horizontal flange into structural deck 8" on center or a minimum of two fasteners per scupper with approved fasteners.
4. Install fully fabric-reinforced fluid-applied flashing membrane through scupper and extend a minimum of 4" around scupper opening onto the face of the exterior wall as indicated in the Contract Drawings.

#### I. Downspouts:

1. Fabricate downspouts in 10 foot lengths. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-32B.
2. Downspout shall tie into existing below grade storm drainage system or, if no below grade system is applicable, downspout shall kick-out above grade onto concrete splash blocks.
3. Downspout shall be secured to the structure with one-piece hangers spaced no more than 5 feet apart with a minimum of two hangers with a hanger located within 12 inches from bottom. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-35G.
4. Downspout are to be fashioned so as to run back to (at overhangs) and parallel to the facility walls.

J. Door Threshold Flashing

1. Fabricate door threshold flashing as shown in detail drawings.
2. Install roofing flashing ply through the door threshold.
3. Install the threshold sheet metal flashing as indicated in the detail drawings.

K. Soil Pipe:

1. Provide field wrapped pipe penetration flashing or manufacturer's pre-fabricated pipe boot as shown in detail drawing. See Section 07 54 00, Adhered Thermoplastic Single-Ply Roofing, 3.03 Flashing Installation, Paragraph H, Soil Pipe/Pipe Penetration.

**3.03 EXPOSED STEEL**

- A. Wire brush all existing steel components to remove all rust, debris, etc.
- B. Prime and paint (2 coats) exposed surfaces to provide uniform finish. Color as selected by Owner.

**3.04 CLEANING AND PROTECTION**

- A. All sheet metal work shall be thoroughly cleaned of all scrapes and dust.
- B. Scratches through the metal finish shall be replaced to the Owner's satisfaction.

**END OF SECTION 07 62 00**

## SECTION 07 92 00

### ELASTOMERIC JOINT SEALANTS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. The Contractor shall properly prepare and seal all openings in the concrete parapet wall. Contractor shall prime substrate where required for proper sealant adhesion.

##### 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:
  - 1. Division 1, Section "Summary of Work".

##### 1.03 REFERENCES

- A. Refer to the following references for specification compliance:
  - 1. Federal Specification TTS-00230C Elastomeric type, cold-applied multi-component for caulking, sealing and glazing in building areas, and other structures.
  - 2. ASTM C 719
  - 3. ASTM C 794
  - 4. ASTM C 920
    - a. Type S (single-component)
    - b. Grade NS (non-sag)
    - c. Class 50 (passes 50% movement per ASTM C 719 on mortar)
  - 5. Underwriters Laboratories, Inc. – UL

##### 1.04 SUBMITTALS

- A. Refer to Section 01 33 00 for Submittals.

##### 1.05 QUALITY ASSURANCE

- A. Sealant manufacturing qualifications: The Manufacturer of the specified product shall be ISO 9001/9002 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of building waterproofing and building envelope restoration with a successful performance record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by Manufacturer's representative.
- C. Contractor shall install materials in accordance with all requirements of Manufacturer, and as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Contractor shall be responsible for safety and handling.



## **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery. Material shall be delivered in the manufacturer's original sealed and labeled containers and cartons.
- B. Storage. Materials shall be stored out of direct exposure to the elements, located above standing water at least 4 inches above ground level. Non-sweating tarpaulins will be placed to prevent moisture contamination.
- C. Sealants are heat and moisture sensitive and shall be protected from excessive heat exposure and moisture exposure.
- D. Sealants shall not be exposed to prolonged freezing temperatures.
- E. Shelf Life: Products over 9 months old shall not be used unless Manufacturer's published literature allow. Contractor shall document product self-life information, and check expiration date before use.
- F. Handling. Material shall be handled in such a manner to prevent exposure to moisture. During cold temperatures (less than 40°F) store containers at room temperature for 24 hours.

## **1.07 PROJECT CONDITIONS**

- A. Sealant shall not be applied during precipitation or started in the event there is a probability of precipitation during the application. Conditions shall be forecast to be dry for no less than 24 hours after application
- B. Contractor shall ensure all of the sealant Manufacturer's published requirements are followed, including the following general limitations for silicone sealants:
  - 1. Do not apply silicone sealants to polyurethane sealants, or install adjacent to polyurethane sealants.
  - 2. Do not allow silicone sealant to come in contact with alcohol-based sealants, butyl sealants, acrylic sealants or any other incompatible materials.
  - 3. Do not allow silicone sealant to come in contact with oil-based caulking/sealants, oil, asphalt, polysulfides, or fillers impregnated with oil, asphalt or tar.
  - 4. Do not install sealant on damp substrates.
  - 5. Do not install where sealant will be continually immersed in water.
  - 6. Contractor shall prime masonry, stainless steel, copper, galvanized steel and Kynar finished metal with sealant Manufacturer's approved primer. Refer to specified primers.
  - 7. Contractor shall follow all of the Manufacturer's published precautions.
- C. No more sealant shall be installed than can cure for 24 hours before precipitation.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Silicone sealant: Shall be a single-component, premium grade, silicone-based elastomeric material. It shall be applicable in horizontal, vertical, and overhead joints. The sealant shall cure under the influence of atmospheric moisture to form an elastomeric substance.

Shall meet Federal Specification TT-S-00230C, Class A and ASTM C 920, Type S, Grade NS, Class 50, Use NT, M, G, A or O. Color to match adjacent substrate materials, and approved by Owner in advance of application. Acceptable Manufacturers include Dow Corning 795 Silicone Building Sealant or approved equivalent.

- B. Primer: Primer manufactured and recommended by Sealant Manufacturer. Contractor shall consult sealant Manufacturer's published literature for specific substrate and primer types.
- C. Backer-rod: Closed-cell backer-rod or soft backer-rod as recommended by sealant Manufacturer. Closed-cell backer rod shall be 1/8" larger than joint for compression, and soft backer-rod shall be 25% greater than joint for tight fitting compression in the joint.
- D. Bond-breaker: Polyethylene strip or tape, as recommended by or supplied by the sealant Manufacturer to prevent 3-sided bond in joints.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Contractor shall inspect joints and substrate for soundness and notify Engineer in writing of any unacceptable conditions.
- B. Commencement of work signifies Contractor's acceptance of substrate. Any defects in sealant work resulting from such accepted substrates shall be corrected by the Contractor at no additional expense to the Owner.

#### **3.02 PREPARATION**

- A. General
  - 1. Contractor shall follow all of the applicable preparation requirements published by the Manufacturer.
  - 2. Substrate shall be dry and cleaned free of loose debris and foreign matter prior to installation of materials.
  - 3. Contractor shall inspect substrate for unacceptable conditions, and inspect the environment for materials incompatible with silicone sealant. Contractor shall dig-out or grind-out, and remove all old sealants and loose materials in joint. Contractor shall not re-seal over existing sealant.
  - 4. Prime masonry substrates. Contractor shall apply primer to substrates where required for adhesion. Avoid primer contact with bond-breaker materials. Refer to Manufacturer's published literature for substrates commonly requiring primer. When condition of substrate is suspect, Contractor shall apply Manufacturer's primer to ensure proper adhesion.
  - 5. Apply backer-rod in open joints to prevent 3-sided adhesion. Backer-rod shall be sized per Manufacturer's published literature. Closed cell backer-rod shall not be punctured during installation to prevent out-gassing that may result in bubbling/blistering in sealant.
  - 6. Where shallow joints cannot accept backer-rod, Contractor shall install polyethylene strip or tape to prevent 3-sided adhesion at back of the joint.

- B. Protection
  - 1. Protect building surfaces and interior with canvas or suitable tarp wherever equipment or materials are taken up to or down from roof.
  - 2. Protect building interiors using suitable methods against any damage from roofing activities.

### **3.03 APPLICATION**

- A. Joints (masonry joints and other exposed building joints):
  - 1. Placement Procedure: Prime substrate as required based upon the recommendations of the sealant Manufacturer, when field testing indicates need, and when the joints may be subject to water immersion after cure, and as approved by the Engineer.
  - 2. Install approved backer rod or bond breaker tape in all joints subject to thermal movement to prevent 3-sided bonding, and to set the depth of the sealant at a maximum of 1/2 in., measured at the center point of the joint width.
  - 3. Where aesthetics require, joints shall be masked (taped) to prevent discoloration or application on unwanted areas, as directed by the Owner and/or Engineer. If masking tape is used, it shall not be removed before tooling, yet must be removed before the initial cure of the sealant. Do not apply the masking tape until just prior to the sealant application.
  - 4. Install sealant into the prepared joints when the joint is at the mid-point of its expansion and contraction cycle. Place the nozzle of the gun, either hand, air, or electric powered, into the bottom of the joint and fill entire joint. Keep the tip of the nozzle in the sealant; continue with a steady flow of sealant preceding the nozzle to avoid air entrapment. Avoid overlapping the sealant to eliminate the entrapment of air.
  - 5. Contractor shall tool sealant to properly fill the joint.
  - 6. Application shall be in accordance with the sealant Manufacturer's published requirements and all limitations and precautions for the silicone sealant shall be followed.

### **3.04 CLEANING**

- A. The uncured silicone sealant may be cleaned with an approved solvent. The cured silicone sealant shall be removed mechanically.
- B. Water shall not be used on un-cured sealant.
- C. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.
- D. Remove all masking tape installed around sealant.
- E. Clean up and dispose of all trash and debris from site.

**END OF SECTION 07 92 00**

## **SECTION 23 01 00**

### **BASIC MECHANICAL MATERIALS AND METHODS**

#### **PART 1 GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### **1.02 SUMMARY**

- A. This Section includes the following:
  - 1. Mechanical demolition.
  - 2. Equipment Installation.

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

#### **PART 3 EXECUTION**

##### **3.01 MECHANICAL DEMOLITION**

- A. Refer to Division 01 Sections "Cutting and Patching" and "Selective Demolition" for general demolition requirements and procedures.
- B. Disconnect, demolish, and remove mechanical systems, equipment, and components indicated to be removed.
  - 1. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.

##### **3.02 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS**

- A. Install equipment level and plumb, parallel and perpendicular to other building systems and components.
- B. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

##### **3.03 ERECTION OF METAL SUPPORTS AND ANCHORAGES**

- A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.
- B. Field Welding: Comply with AWS D1.1.

**END OF SECTION 23 01 00**

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## SECTION 23 07 00

### DUCT INSULATION

#### **PART 1 GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### **1.02 SUMMARY**

- A. This Section includes semirigid duct insulation; insulating cements; field-applied jackets; accessories and attachments; and sealing compounds.
- B. In conformance with ASHRAE, MBtu or MBh, intended to mean 1000 Btu and 1000 Btu/hr, respectively, will not be used in this section. Instead k will indicate 1000 and M, if used, will indicate 1,000,000 or  $10^6$ .

##### **1.03 SUBMITTAL**

- A. Product Data: Identify thermal conductivity, thickness, and jackets (both factory and field applied, if any), for each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for the following:
  - 1. Removable insulation sections at access panels.
  - 2. Application of field-applied jackets.
  - 3. Applications of insulation at linkages for control devices.
  - 4. Application of insulation on irregular shapes.
- C. Material Test Reports: Submit data from a qualified testing agency acceptable to the authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealants, attachments, cements, and jackets with requirements indicated in Section 6 - Heating, Ventilating, and Air Conditioning, Section 7 - Service Water Heating, of ASHRAE/IESNA Standard 90.1, including related tables shown at the end of this section. Include dates of tests.

##### **1.04 QUALITY ASSURANCE**

- A. ASHRAE/IESNA Compliance: All insulation characteristics shall comply with the requirements of ASHRAE Standard 90.1, including related tables contained therein. Insulation characteristics shall comply with all applicable requirements of ASHRAE Standard 90.1. All supply ductwork with the exception of buried ductwork and ductwork located in indirectly conditioned spaces shall be insulated in accordance with ASHRAE Standard 90.1. All supply duct insulation shall have a vapor barrier jacket. The vapor barrier jacket shall cover the duct system with a continuous, unbroken vapor seal. All return and exhaust air distribution systems shall be insulated in accordance with ASHRAE Standard 90.1.
- B. General Compliance: Where the requirements for a description of insulation characteristics or performance ratings defined in a publication or standard referenced herein conflict, the most restrictive shall apply.

- C. Fire-Test-Response Characteristics: As determined by testing materials identical to those specified in this Section according to ASTM E 84, NFPA 255 and UL 723 by a testing and inspecting agency acceptable to authorities having jurisdiction. Accessories such as adhesives, mastics, cements, tapes, etc., shall have the same or better fire and smoke hazard ratings as that identified for the insulation materials. Factory label insulation and jacket materials and sealer and cement material containers with appropriate markings of applicable testing and inspecting agency
  - 1. Insulation Installed Indoors: Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less.
  - 2. Insulation Installed Outdoors: Flame-spread rating of 75 or less, and smoke-developed rating of 150 or less.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Packaging: Ship insulation materials in containers marked by the insulation manufacturer with appropriate ASTM specification designation, type and grade, and maximum use temperature.

**1.06 COORDINATION**

- A. Coordinate carefully with trades to ensure that the necessary clearance requirements are maintained for proper installation of the insulation.

**1.07 SCHEDULING**

- A. Installation of the insulation shall begin only after testing of the duct systems. Insulation application may begin on segments of ducts that have satisfactory test results.

**1.08 WARRANTY**

- A. Special Warranty: The system herein specified shall be free from defects in workmanship and material under normal use and service. If within 24 months from the date of acceptance by the Owner/Architect, equipment or software herein described is proven to be defective in workmanship or material, it shall be adjusted, repaired, or replaced free of charge. This system warranty shall also include each software program, upgrade and maintenance.
- B. Warranty Period for Two years from date of Substantial Completion.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Available Manufacturers: Subject to compliance with these specifications, manufacturers offering products that may be incorporated into the Work include, but are not limited to, those listed below:
  - 1. Mineral Fiber Insulation:
    - a. CertainTeed Manson.
    - b. Knauf FiberGlass GmbH.
    - c. Owens-Corning Fiberglas Corp.
    - d. Schuller International, Inc.

## **2.02 INSULATION MATERIALS**

- A. Mineral Fiber Board Thermal Insulation: Insulation shall consist of glass fibers bonded with a thermosetting resin. Insulation shall comply with ASTM C 612, Type IB, without facing and with all-service type jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.

## **2.03 FIELD APPLIED JACKETS**

- A. General: Jackets shall comply with ASTM C 921, Type 1, unless otherwise indicated.

Self-Adhesive Outdoor Jacket: 60-mil- (1.5-mm-) thick, laminated vapor barrier and waterproofing membrane for installation over insulation located aboveground outdoors; consisting of a rubberized bituminous resin on a crosslaminated polyethylene film covered with **white** aluminum-foil facing.

## **2.04 ACCESSORIES AND ATTACHMENTS**

- A. Glass Cloth and Tape: Cloth and tape shall comply with MIL-C-20079H, Type I for cloth and Type II for tape, respectively. Woven glass-fiber fabrics shall be plain weave and pre-sized to a minimum of 270 g/sq. m (8 oz./sq. yd.).

- 1. Tape Width: 100 mm (4 inches).

- B. Adhesive-Attached Anchor Pins and Speed Washers: Pins and washers shall consist of a galvanized steel plate, pin, and washer manufactured for attachment to duct and plenum with adhesive. Pin length shall be sufficient for the insulation thickness indicated.

- 1. Adhesive: Adhesive shall be as recommended by the anchor pin manufacturer as appropriate for surface temperatures of ducts, plenums, and breechings; and to achieve a holding capacity of 45 kg (100 lb) for direct pull perpendicular to the adhered surface.

- 2. Trimming: Excess pin lengths shall be field-cut so as not to present a hazard to installers or maintenance personnel.

- C. Self-Adhesive Anchor Pins and Speed Washers: Pins and washers shall consist of a galvanized steel plate, pin, and washer manufactured for attachment to a duct and/or plenum with adhesive. Pin length shall be sufficient for the insulation thickness indicated.

- 1. Adhesive: Adhesive shall be as recommended by the anchor pin manufacturer as appropriate for surface temperatures of ducts, plenums, and breechings; and to achieve a holding capacity of 45 kg (100 lb) for direct pull perpendicular to the adhered surface.

- 2. Trimming: Excess pin lengths shall be field-cut so as not to present a hazard to installers or maintenance personnel.

## **2.05 VAPOR RETARDANTS**

- A. Mastics: Mastic type materials shall be as recommended by the insulation material manufacturer and shall be compatible with the insulation materials, jackets, and substrates.

## **PART 3 EXECUTION**



### **3.01 EXAMINATION**

- A. Examine substrates and field conditions for compliance with the insulation material manufacturers' requirements for installation and other conditions affecting performance of the insulation application.
- B. Proceed with the installation only after unsatisfactory conditions have been corrected.

### **3.02 PREPARATION**

- A. Surface Preparation: Clean and dry surfaces scheduled or specified to receive insulation. Remove materials that might adversely affect the insulation application.

### **3.03 GENERAL APPLICATION REQUIREMENTS**

- A. Prior to installation of insulation, all ductwork must be sealed as described in the requirements of Section 6, Heating, Ventilation, and Air Conditioning, of ASHRAE Standard 90.1, including the tables at the end of this section.
- B. Apply insulation materials, accessories, and finishes in accordance with the manufacturer's written instruction. Finished insulation surfaces shall be smooth, straight, and even surfaces, and free of voids throughout the entire length of the ducts and fittings.
- C. Refer to the schedules at the end of this Section for materials, forms, jackets, and thickness of insulation required for each duct system.
- D. Accessories shall be compatible with the insulation materials and suitable for the intended service. Use accessories that will not corrode, soften, or otherwise attack the insulation or jacket in either a wet or a dry state.
- E. Multiple layers of insulation shall be applied with lateral, longitudinal and end seams staggered.
- F. Joints and seams shall be sealed with a vapor-retarding mastic on insulation indicated to have or receive a vapor retardant.
- G. Keep insulation materials dry during application and finishing. Materials that show signs of having been wet, shall be replaced with materials at no additional cost.
- H. Apply insulation with tight lateral and longitudinal seams and end joints. Bond seams and joints with an adhesive recommended by the insulation material manufacturer.
- I. Apply insulation with the least number of joints practical.
- J. Apply insulation over fittings and specialties, with continuous thermal and vapor-retardants integrity, unless otherwise specifically indicated.
- K. Hangers and Anchors:
  - 1. On ducts specified to have a vapor retardant barrier, the hangers shall be configured so the duct, insulation and vapor retardant barrier are supported by the hanger without interruption or penetration of the vapor retardant barrier. Ducts indicated

- as not requiring vapor retardant barrier, which have hangers penetrating the insulation, the hangers shall be sealed with vapor retardant mastic.
2. Where anchors penetrate the insulation on ducts specified to have a vapor retardant barrier, the anchor material shall be insulated and sealed with vapor retardant mastic to a distance sufficient to prevent condensation. On ducts not indicated as requiring a vapor retardant barrier, anchor penetration shall be sealed at the insulation surface with a vapor retardant mastic.
- L. Insulation Terminations: For insulation applications where vapor retardants are indicated, seal ends with a compound recommended by the insulation material manufacturer to maintain the integrity of the vapor retardant. Sealant characteristics and applications shall comply with the requirements of ASHRAE Standard 90.1.
- M. Insulation that is subject to reduction in thermal resistivity if wetted shall be enclosed with a vapor seal such as a vapor barrier jacket. All insulation and vapor barrier jackets shall comply with the requirements of ASHRAE Standard 90.1, including related tables shown at the end of this section. Insulation characteristics shall comply with all applicable requirements of ASHRAE Standard 90.1.
- N. Provide vapor barrier jacket as described by the requirements of ASHRAE Standard 90.1. Apply insulation with integral jackets as follows:
1. Placement: pull jacket tight and smooth.
  2. Joints and Seams: Cover joints and seams with tape and vapor retardant as recommended by insulation material manufacturer to maintain a vapor seal.
  3. Vapor Retarding Mastics: Where vapor retardants are indicated, apply mastic on seams and joints and at the ends adjacent to duct flanges and fittings.
- O. Cut insulation in accordance with the manufacturer's written instructions to prevent compressing the insulation to less than 75 percent of its nominal thickness.
- P. Insulation that is subject to reduction in thermal resistivity if wetted shall be enclosed with a vapor seal such as a vapor barrier jacket. Install vapor-retardant mastic on ducts and plenums scheduled to receive the vapor retardants.
1. Ducts with Vapor Retardants: Overlap insulation facing at seams and seal with vapor retarding mastic and a pressure sensitive tape having the same facing as the insulation. Repair punctures, tears, and penetrations with tape and/or mastic to maintain the vapor retardant seal.
  2. Ducts without Vapor Retardants: Overlap insulation facing at seams and secure with outward clinching staples and pressure-sensitive tape having the same facing as the insulation.

### **3.04 MINERAL-FIBER INSULATION APPLICATION**

- A. Board Applications for Ducts and Plenums: Board insulation shall be secured with adhesive and anchor pins and speed washers in accordance with the following:
1. Apply adhesives according to the manufacturer's recommended coverage rates per square foot, to attain 100 percent coverage of duct and plenum surfaces.
  2. Apply adhesive to entire circumference of ducts and to surfaces of fittings and transitions.
  3. Space anchor pins as follows:

- a. On duct sides with dimensions 450 mm (18 inches) and smaller, along longitudinal centerline of duct. Space 75 mm (3 inches) maximum from insulation end joints, and 400 mm (16 inches) o.c.
  - b. On duct sides with dimensions larger than 450 mm (18 inches). Space 400 mm (16 inches) o.c. each way, and 75 mm (3 inches) maximum from insulation joints. Apply additional pins and clips to hold insulation tightly against surface at cross bracing.
  - c. Anchor pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
  - d. Do not over compress insulation during installation of speed washers.
4. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
  5. Create a facing lap for longitudinal seams and end joints with insulation by removing 50 mm (2 inches) from one edge and one end of insulation segment. Secure laps to adjacent insulation segment with 13 mm (1/2 inch) outward clinching staples, 25 mm (1 inch) o.c., and cover with pressure-sensitive tape having same facing as insulation.
  6. Apply insulation on rectangular duct elbows and transitions with a full insulation segment for each surface. Groove and score insulation to fit as closely as possible to outside and inside radius of elbows. Apply insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
  7. Insulate duct stiffeners, hangers, and flanges that protrude beyond the insulation surface with 150 mm (6 inch) wide strips of the same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with anchor pins spaced 150 mm (6 inches) o.c.
  8. Apply vapor retarding mastic to open joints, breaks, and punctures for insulation indicated to receive vapor retardant.

### **3.05 FIELD APPLIED JACKET APPLICATION**

- A. Where self-adhesive outdoor jackets are indicated, install with 2-inch (50-mm) overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer.

### **3.06 DUCT SYSTEM APPLICATIONS**

- A. Insulate the following duct systems:
  1. Exterior exposed supply and return air ductwork.

### **3.07 EXTERIOR DUCT APPLICATION SCHEDULE**

- A. Service: Supply-air and Return-air ducts.
  1. Material: Mineral fiber board.
  2. Thickness: (2 inches).
  3. Number of Layers: One.
  4. Field Applied Jacket: self-adhesive outdoor jackets

**END OF SECTION 23 07 00**

## SECTION 23 31 13

### METAL DUCTS

#### **PART 1 GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### **1.02 SUMMARY**

- A. This Section includes metal ducts for supply, return, outside, and exhaust air-distribution systems in pressure classes from minus 500 to plus 2500 Pa (minus 2- to plus 10-inch wg). Metal ducts include the following:
  - 1. Single-wall, rectangular ducts and fittings.

##### **1.03 DEFINITIONS**

- A. Transverse Joints: Connections of two duct or fitting elements oriented perpendicular to air flow and include, but are not limited to, spin-ins, taps, and other branch connections, access doors frames, and duct connection to equipment.

##### **1.04 QUALITY ASSURANCE**

- A. NFPA Compliance:
  - 1. NFPA 90A, "Installation of Air Conditioning and Ventilating Systems."
  - 2. NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

#### **PART 2 PRODUCTS**

##### **2.01 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

##### **2.02 SHEET METAL MATERIALS**

- A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 924/A 924M, ASTM A 653/A 653M and having Z180 (G60) coating designation; ductwork shall have mill-phosphatized finish for surfaces exposed to view.

- C. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts.
  - 1. Tie Rods: Galvanized steel, 6-mm (1/4-inch) minimum diameter for lengths 900 mm (36 inches) or less; 10-mm (3/8-inch) minimum diameter for lengths longer than 900 mm (36 inches).

## **2.03 SEALANT MATERIALS**

- A. Joint and Seam Sealants, General: The term "sealant" is not limited to materials of adhesive or mastic nature but includes tapes and combinations of open-weave fabric strips and mastics.
- B. Water-Based Joint and Seam Sealant: Flexible, adhesive sealant, resistant to UV light when cured, UL 723 listed, and complying with NFPA requirements for Class 1 ducts.
- C. Flange Gaskets: Butyl rubber or EPDM polymer with polyisobutylene plasticizer.

## **2.04 HANGERS AND SUPPORTS**

- A. Hanger Materials: Galvanized sheet steel or threaded steel rod.
  - 1. Hangers Installed in Corrosive Atmospheres: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
  - 2. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for steel sheet width and thickness and for steel rod diameters.
  - 3. Galvanized-steel straps attached to aluminum ducts shall have contact surfaces painted with zinc-chromate primer.
- B. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.
- C. Trapeze and Riser Supports: Steel shapes complying with ASTM A 36/A 36M.
  - 1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.

## **2.05 SINGLE WALL RECTANGULAR DUCT FABRICATION**

- A. Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" and complying with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.
  - 1. Lengths: Fabricate rectangular ducts in standard nominal two-meter (six-foot) lengths appropriate to reinforcement and rigidity class required for pressure class.
  - 2. Deflection: Duct systems shall not exceed deflection limits according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."
  - 3. Ship in L-shaped sections for field assembly.
- B. Transverse Joints: Prefabricated slide-on joints and components constructed using manu-

facturer's guidelines for material thickness, reinforcement size and spacing, and joint reinforcement.

- C. Longitudinal Joints: Button punch, snap-lock, or Pittsburgh-lock seams.
- D. Formed-On Flanges: Construct according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," Figure 1-4, using corner, bolt, cleat, and gasket details.
  - 1. Duct Size: Maximum 750 mm (30 inches) wide and up to 500-Pa (2-inch wg) pressure class without corner pieces.
  - 2. Longitudinal Seams: Pittsburgh lock sealed with noncuring polymer sealant.
- E. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 480 mm (19 inches) and larger and 0.9 mm (0.0359 inch) thick or less, with more than 0.93 sq. m (10 sq. ft.) of nonbraced panel area. Not required for ductwork with insulation covering or acoustical liner.

## **PART 3 EXECUTION**

### **3.01 DUCT APPLICATIONS**

- A. Static-Pressure Classes: Unless otherwise indicated, construct ducts according to the following:
  - 1. Supply Ducts: 1500 Pa (6-inch wg).
  - 2. Supply Ducts (in Mechanical Equipment Rooms): 1500 Pa (6-inch wg).
  - 3. Return Ducts (Negative Pressure): 750 Pa (3-inch wg).
  - 4. Exhaust Ducts (Negative Pressure): 500 Pa (2-inch wg).

### **3.02 SEAM AND JOINT SEALING**

- A. Indoor Rectangular Ducts:
  - 1. Supply Ducts: Seal transverse joints, longitudinal seams, and duct wall penetrations to include those by screws, non-self-sealing fasteners, pipes, tubing, rods, and wires.
  - 2. Return and Exhaust Ducts: Seal transverse joints and longitudinal seams.
- B. Seal ducts before external insulation is applied.

### **3.03 DUCT INSTALLATION**

- A. Construct and install ducts according to SMACNA's "HVAC Duct Construction Standards-Metal and Flexible," unless otherwise indicated.
- B. Install ducts with fewest possible joints.
- C. Install fabricated fittings for changes in directions, size, and shape and for connections.
- D. Install couplings tight to duct wall surface with a minimum of projections into duct. Secure couplings with sheet metal screws. Install screws at intervals of 300 mm (12 inches), with a minimum of 3 screws in each coupling.

- E. Install ducts, unless otherwise indicated, vertically and horizontally and parallel and perpendicular to building lines; avoid diagonal runs.
- F. Seal all joints and seams. Apply sealant to male end connectors before insertion, and afterward to cover entire joint and sheet metal screws.

**3.04 HANGING AND SUPPORTING**

- A. Support horizontal ducts within 600 mm (24 inches) of each elbow and within 1200 mm (48 inches) of each branch intersection.

**3.05 FIELD QUALITY CONTROL**

- A. Perform tests and inspections.
- B. Duct System Cleanliness Tests:
  - 1. Visually inspect duct system to ensure that no visible contaminants are present.
  - 2. Test sections of metal duct system, chosen randomly by Owner, for cleanliness according to "Vacuum Test" in NADCA ACR, "Assessment, Cleaning and Restoration of HVAC Systems."
    - a. Acceptable Cleanliness Level: Net weight of debris collected on the filter media shall not exceed 0.75 mg/100 sq. cm.
- C. Duct system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

**END OF SECTION 23 31 13**

## SECTION 23 33 00

### DUCT ACCESSORIES

#### **PART 1 GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### **1.02 SUMMARY**

- A. This Section includes the following:
  - 1. Turning vanes.
  - 2. Duct-mounting access doors.
  - 3. Flexible connectors.

##### **1.03 SUBMITTALS**

- A. Product Data: For the following:
  - 1. Volume dampers, including balancing dampers.

##### **1.04 QUALITY ASSURANCE**

- A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

#### **PART 2 PRODUCTS**

##### **2.01 SHEET METAL MATERIALS**

- A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated.
- B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having Z180 (G60) coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.
- C. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts.
- D. Tie Rods: Galvanized steel, 6-mm (1/4-inch) minimum diameter for lengths 900 mm (36 inches) or less; 10-mm (3/8-inch) minimum diameter for lengths longer than 900 mm (36 inches).

##### **2.02 TURNING VANES**

- A. Fabricate to comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for vanes and vane runners. Vane runners shall automatically align vanes.



## **2.03 DUCT-MOUNTING ACCESS DOORS**

- A. General Description: Fabricate doors airtight and suitable for duct pressure class.
- B. Door: Double wall, duct mounting, and rectangular; fabricated of galvanized sheet metal with insulation fill. Include vision panel where indicated. Include piano hinge and cam latches.
  - 1. Frame: Galvanized sheet steel, with bend-over tabs and foam gaskets.
  - 2. Provide number of hinges and locks as follows:
    - a. Less Than 300 mm (12 Inches) Square: Secure with two sash locks.
    - b. Up to 450 mm (18 Inches) Square: Two hinges and two sash locks.
    - c. Up to 600 by 1200 mm (24 by 48 Inches): Three hinges and two compression latches with outside and inside handles.
    - d. Sizes 600 by 1200 mm (24 by 48 Inches) and Larger: One additional hinge.
- C. Seal around frame attachment to duct and door to frame with neoprene or foam rubber.
- D. Insulation: 25-mm- (1-inch-) thick, fibrous-glass or polystyrene-foam board.

## **2.04 FLEXIBLE CONNECTORS**

- A. General Description: Flame-retardant or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1.
- B. Metal-Edged Connectors: Factory fabricated with a fabric strip 146 mm (5-3/4 inches) wide attached to two strips of 70-mm- (2-3/4-inch-) wide, 0.7-mm- (0.028-inch-) thick, galvanized sheet steel or 0.8-mm- (0.032-inch-) thick aluminum sheets. Select metal compatible with ducts.
- C. Indoor System, Flexible Connector Fabric: Glass fabric double coated with neoprene.
  - 1. Minimum Weight: 880 g/sq. m (26 oz./sq. yd.).
  - 2. Tensile Strength: 84 N/mm (480 lbf/inch) in the warp and 63 N/mm (360 lbf/inch) in the filling.
  - 3. Service Temperature: Minus 40 to plus 93 deg C (Minus 40 to plus 200 deg F).

## **PART 3 EXECUTION**

### **3.01 APPLICATION AND INSTALLATION**

- A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for metal.
- B. Provide duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel.
- C. Provide turning valve in all rectangular supply elbows and as indicated on drawings.
- D. Install duct access doors to allow for inspecting, adjusting, and maintaining accessories

and terminal units as follows:

1. Downstream from volume dampers, turning vanes, and equipment.
  2. To interior of ducts for cleaning; before and after each change in direction, at maximum 15-m (50-foot) spacing.
- E. Install the following sizes for duct-mounting, rectangular access doors:
1. One-Hand or Inspection Access: 200 by 125 mm (8 by 5 inches).
  2. Two-Hand Access: 300 by 150 mm (12 by 6 inches).
- F. Install flexible connectors immediately adjacent to equipment in ducts associated with fans and motorized equipment supported by vibration isolators.

**END OF SECTION 23 33 00**

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## SECTION 23 74 16

### ROOFTOP AIR CONDITIONERS

#### **PART 1 GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### **1.02 SUMMARY**

- A. This Section includes the following rooftop air conditioners:
  - 1. Cooling and heating units larger than 20 tons (70 kW).

##### **1.03 SUBMITTALS**

- A. Product Data: For each model indicated.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
  - 1. Wiring Diagrams: Power, signal, and control wiring.
- C. Field quality-control test reports.
- D. Operation and maintenance data.
- E. Warranties: Special warranties specified in this Section.

##### **1.04 QUALITY ASSURANCE**

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Code for Mechanical Refrigeration."
- C. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Code for Mechanical Refrigeration."
- D. Energy-Efficiency Ratio: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
- E. Coefficient of Performance: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
- F. Comply with NFPA 54 for gas-fired furnace section.
- G. ARI Compliance for Units with Capacities 135,000 Btuh (39.6 kW) and More: Rate roof-

top air-conditioner capacity according to ARI 340/360, "Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment."

1. Sound Power Level Ratings: Comply with ARI 270, "Sound Rating of Outdoor Unitary Equipment."

H. Units shall be designed to operate with HCFC-free refrigerants.

## **1.05 WARRANTY**

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to replace components of rooftop air conditioners that fail in materials or workmanship within specified warranty period.

1. Warranty Period for Compressors: Manufacturer's standard, but not less than five years from date of Substantial Completion.

2. Warranty Period for Control Boards: Manufacturer's standard, but not less than three years from date of Substantial Completion.

3. Warranty Period for Variable-Speed Fan Motors: Manufacturer's standard, but not less than three years from date of Substantial Completion.

## **PART 2 PRODUCTS**

### **2.01 ROOFTOP AIR CONDITIONERS LARGER THAN 20 TONS (70 kW)**

A. Available Manufacturers:

1. Trane Company. (Base of Design, Model#SFHLF40ELANCC7BD9001A0C0FG00RT0M8600)
2. Johnson Controls.
3. Carrier Technologies.

B. Description: Factory assembled and tested; designed for exterior installation; consisting of compressor, indoor and outside refrigerant coils, indoor fan, return fan, and outside coil fan, refrigeration and temperature controls, filters, and dampers.

C. Casing: Manufacturer's standard galvanized sheet metal construction with exterior enamel paint finish, hinged access doors with neoprene gaskets for inspection and access to internal parts, minimum 1/2-inch- (13-mm-) thick thermal insulation, knockouts for electrical and piping connections, exterior condensate drain connection, and lifting lugs.

D. Indoor Fan: Forward curved, centrifugal, belt driven with adjustable motor sheaves, grease-lubricated ball bearings, and motor.

E. Outside Coil Fan: Propeller type, directly driven by permanently lubricated motor.

F. Refrigerant Coils: Aluminum-plate fin and seamless copper tube in galvanized-steel casing with equalizing-type vertical distributor and thermal expansion valve; tested to 450 psig (3105 kPa) and leak tested to 300 psig (2070 kPa) with air under water. Insulate coil section.

G. Compressor(s): Four hermetic scroll compressors with integral vibration isolators, internal overcurrent and over temperature protection, internal pressure relief, and crankcase heater(s).

H. Refrigeration System:

1. Compressor(s).
2. Outside coil and fan.
3. Indoor coil and fan.
4. Expansion valves with replaceable thermostatic elements.
5. Refrigerant dryers.
6. High-pressure switches.
7. Low-pressure switches.
8. Thermostats for coil freeze-up protection during low-ambient temperature operation or loss of air.
9. Independent refrigerant circuits.
10. Brass service valves installed in discharge and liquid lines.
11. Refrigerant Charge: R-410A.
12. Timed Off Control: Automatic-reset control shuts compressor off after five minutes.
13. Refrigerant Circuits: Interlaced refrigerant-coil circuiting with circuit for each compressor.
14. Capacity Control: Minimum 4 compressors.
15. Capacity Control: Hot-gas bypass valve and piping on one compressor.
16. Compressor Motor Overload Protection: Manual reset.
17. Antirecycling Timing Device: Prevents compressor restart for five minutes after shutdown.
18. Adjustable, Low-Ambient, Head-Pressure Control: Designed to operate at temperatures as low as 0 deg F (minus 18 deg C) by cycling outside coil fans and controlling speed of last fan of each circuit.
19. Oil-Pressure Switch: Designed to shut down compressors on low oil pressure.

I. Filters: 2-inch-(50-mm-) thick, fiberglass, pleated, throwaway filters in filter rack.

J. Heat System:

1. Description: Factory assembled, piped, and wired; complying with ANSI Z21.47/CSA 2.3 and NFPA 54.
2. Burners: Stainless steel.
3. Fuel: Natural gas.
4. Ignition: Electronically controlled electric spark or hot-surface igniter with flame sensor.
5. Heat-Exchanger and Drain Pan: Stainless steel.
6. Power Vent: Integral, motorized centrifugal fan interlocked with gas valve.
7. Safety Controls:
  - a. Gas Control Valve: 2 stages.
  - b. Gas Train: Single-body, regulated, redundant, 24-V ac gas valve assembly containing pilot solenoid valve, pilot filter, pressure regulator, pilot shutoff, and manual shutoff.

K. Economizer: Return- and outside-air dampers with neoprene seals, outside-air filter, and hood.

1. Damper Motor: Fully modulating spring return with adjustable minimum position.
2. Control: Electronic-control system uses outside-air enthalpy to adjust mixing dampers.
3. Relief Damper: Gravity actuated with bird screen and hood.

4. Leakage: Maximum leakage 2.5 percent at nominal airflow of 400 cfm per ton (54 L/s per kW) with 1-inch wg (250-Pa) pressure differential.
- L. Power Connection: Provide for single connection of power to unit with unit-mounted disconnect switch accessible from outside unit and control-circuit transformer with built-in circuit breaker.
- M. Unit Controls: Solid-state control board and components contain at least the following features:
1. Indoor fan on/off delay.
  2. Default control to ensure proper operation after power interruption.
  3. Unit diagnostics and diagnostic code storage.
  4. Field-adjustable control parameters.
  5. Economizer control.
  6. Gas heat control.
  7. Low-ambient control, allowing operation down to 0 deg F (minus 18 deg C).
  8. Minimum run time.
  9. Return-air temperature limit.
  10. Smoke alarm with smoke detector installed in supply and return air.
  11. Low-refrigerant pressure control.
  12. High duct temperature thermostat.
  13. Digital display of outside temperature, supply-air temperature, return-air temperature, economizer damper position, indoor-air quality, and control parameters.
  14. Variable-Air-Volume Control: Variable-frequency drive controls supply-air static pressure. Supply-air, static-pressure limit shuts unit down on high pressure.
  15. VAV discharge temperature control supply and return fan with VFD and bypass.
  16. Monitor constant and variable motor loads.
  17. Monitor variable frequency drive operation.
  18. Monitor cooling load.
  19. Monitor economizer cycles.
  20. Monitor air distribution static pressure.
- N. Interface Requirements for HVAC Instrumentation and Control System:
1. Provide BACnet IP Communications Interface module.
- O. Optional Accessories:
1. PVC Condensate drain trap.
  2. Dirty-filter switch.
  3. Hail guards of steel, painted to match casing.
  4. Duplex, 115-V, ground-fault-interrupter outlet with 15-A overcurrent protection. Include transformer if required.
  5. Extended grease lines.
  6. Spring Isolators.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install unit's level and plumb, maintaining manufacturer's recommended clearances.

**3.02 CONNECTIONS**

- A. Electrical System Connections: Comply with applicable requirements in Division 16 Sections for power wiring, switches, and motor controls.
- B. Ground equipment according to Division 16 Section "Grounding and Bonding."
- C. Building Control System: Coordinate with the Building control vendor for connections to the unit and the location of the DDC control components. The equipment manufacturer and control vendor shall work together on site to transfer all existing control points.

**3.03 FIELD QUALITY CONTROL**

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.
- B. Perform the following field quality-control tests and inspections and prepare test reports:
  - 1. After installing rooftop air conditioners and after electrical circuitry has been energized, test units for compliance with requirements.
  - 2. Inspect for and remove shipping bolts, blocks, and tie-down straps.
  - 3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
  - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Remove malfunctioning units, replace with new units, and retest as specified above.

**3.04 ADJUSTING**

- A. Set field-adjustable switches and circuit-breaker trip ranges as required.

**END OF SECTION 23 74 16**



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## SECTION 26 01 00

### BASIC ELECTRICAL MATERIALS AND METHODS

#### **PART 1 GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### **1.02 SUMMARY**

- A. This Section includes the following:
  - 1. Connectors.
  - 2. Supporting devices for electrical components.
  - 3. Cutting and patching for electrical construction.

##### **1.03 QUALITY ASSURANCE**

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

##### **1.04 COORDINATION**

- A. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the work.

#### **PART 2 PRODUCTS**

##### **2.01 SUPPORTING DEVICES**

- A. Material: Cold-formed steel, with corrosion-resistant coating.
- B. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.
- C. Expansion Anchors: Carbon-steel wedge or sleeve type.
- D. Toggle Bolts: All-steel springhead type.

#### **PART 3 EXECUTION**

##### **3.01 ELECTRICAL EQUIPMENT INSTALLATION**

- A. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

### **3.02 SUPPORTING INSTALLATION**

- A. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.
- B. Size supports for multiple raceway or cable runs so capacity can be increased by a 25 percent minimum in the future.
- C. Secure electrical items and their supports to building structure, using the following methods unless other fastening methods are indicated.
  - 1. Structural Steel: Welded threaded studs, Spring-tension clamps, Threaded studs driven by powder charge and provided with lock washers.
    - a. Comply with AWS D1.1 for field welding.
  - 2. Light Steel Framing: Sheet metal screws.
  - 3. Light Steel: Sheet-metal screws.
  - 4. Fasteners: Select so load applied to each fastener does not exceed 25 percent of its proof-test load.
- D. Metallic conduit shall not be used for hanger support material.

### **3.03 IDENTIFICATION MATERIALS AND DEVICES**

- A. Install at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.
- C. Self-Adhesive Identification Products: Clean surfaces before applying.
- D. Tag and label circuits designated to be extended in the future. Identify source and circuit numbers in each cabinet, pull and junction box, and outlet box. Color-coding may be used for voltage and phase identification.

### **3.04 CUTTING AND PATCHING**

- A. Cut, channel, chase, and drill walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.
- B. Repair, refinish and touch up disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. All work to be executed by skilled mechanics.

**END OF SECTION 26 01 00**

## SECTION 26 05 33

### RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

#### **PART 1 GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### **1.02 SUMMARY**

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. See Division 26 Section "Basic Electrical Materials and Methods" for supports, anchors, and identification products.

##### **1.03 SUBMITTALS**

- A. Product Data: For surface raceways and fittings.
- B. Shop Drawings: Show fabrication and installation details of components for raceways, fittings, and boxes.

##### **1.04 QUALITY ASSURANCE**

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

#### **PART 2 PRODUCTS**

##### **2.01 MANUFACTURERS**

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

##### **2.02 METAL CONDUIT AND TUBING**

- A. Manufacturers:
  - 1. AFC Cable Systems, Inc.
  - 2. Electri-Flex Co.
  - 3. Grinnell Co./Tyco International; Allied Tube and Conduit Div.
  - 4. O-Z Gedney; Unit of General Signal.

- 5. Wheatland Tube Co.
- B. Rigid Steel Conduit: ANSI C80.1.
- C. LFMC: Flexible steel conduit with PVC jacket.
- D. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

## **2.03 BOXES, ENCLOSURES, AND CABINETS**

- A. Manufacturers:
  - 1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
  - 2. Emerson/General Signal; Appleton Electric Company.
  - 3. Hoffman.
  - 4. Hubbell, Inc.; Killark Electric Manufacturing Co.
  - 5. O-Z/Gedney; Unit of General Signal.
  - 6. RACO; Division of Hubbell, Inc.
  - 7. Robroy Industries, Inc.; Enclosure Division.
  - 8. Thomas & Betts Corporation.
  - 9. Walker Systems, Inc.; Wiremold Company (The).
- B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.
- C. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.

## **2.04 FACTORY FINISHES**

- A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard paint applied to factory-assembled surface raceways, enclosures, and cabinets before shipping, unless specified otherwise.

## **PART 3 EXECUTION**

### **3.01 RACEWAY APPLICATION**

- A. Outdoors:
  - 1. Exposed Conduit: Rigid steel conduit.
  - 2. Concealed Conduit, Aboveground: Rigid steel conduit.
  - 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
  - 4. Boxes Aboveground: NEMA 4XSS.
  - 5. Cabinets: NEMA 4XSS.
- B. Minimum Raceway Size: 3/4-inch trade size (DN 21).
- C. Raceway Fittings: Compatible with raceways and suitable for use and location.
  - 1. EMT Conduit: Compression type, insulated bushings.

### **3.02           INSTALLATION**

- A. Complete raceway installation before starting conductor installation.
- B. Install temporary closures to prevent foreign matter from entering raceways.
- C. Make bends and offsets so ID is not reduced. Keep legs of bends in same plane and keep straight legs of offsets parallel, unless otherwise indicated.
- D. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.
  - 1. Run parallel or banked raceways together on common supports.
  - 2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.
- E. Join raceways with fittings designed and approved for that purpose and make joints tight.
- F. Terminations:
  - 1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
  - 2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.
- G. Flexible Connections: Use maximum of 72 inches (1830 mm) of flexible conduit for recessed and semirecessed lighting fixtures. Install separate ground conductor across flexible connections. "MC" cable is not acceptable unless furnished by the manufacturer for equipment specified.
- H. Install hinged-cover enclosures and cabinet plumb. Support at each corner.

### **3.03           PROTECTION**

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

**END OF SECTION 26 05 33**

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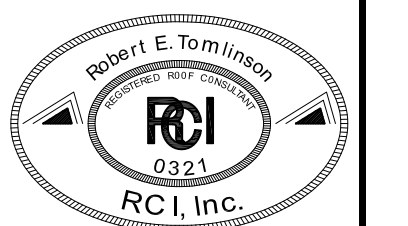
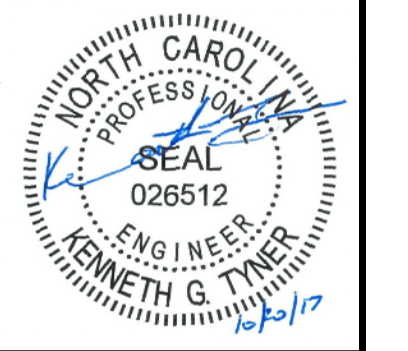


# COUNTY OF DURHAM REPLACEMENT OF MAIN ROOF AND HVAC UNIT DURHAM COUNTY CRIMINAL JUSTICE RESOURCE CENTER



9121 ANSON WAY  
SUITE 100  
RALEIGH, NC 27615  
PH. 919-845-1450  
FAX 919-870-6885

ROOFING, WATERPROOFING  
AND BUILDING ENVELOPE  
ENGINEERS & CONSULTANTS  
CERTIFICATE NO. C-1520



### 2012 APPENDIX B BUILDING CODE SUMMARY FOR COMMERCIAL ROOF REPLACEMENT PROJECTS

Name of Project: County of Durham-Criminal Justice Resource Center  
Address: 326 East Main Street, Durham, NC Zip Code: 27701-3718  
Proposed Use: Offices  
Owner/Authorized Agent: Durham County Engineering/ Peri Manns, ASIA  
Phone # (919) 560-7296 E-Mail: pmanns@dcco.gov  
Owned By:  City/County  Private  State  
Code Enforcement Jurisdiction:  City Durham  County  State

**ROOFING CONSULTANT**  
Firm: REI Engineers License # Telephone # E-Mail  
Richard G. Tynes 026512 (919) 845-1450 ktyner@reieengineers.com  
HDM Associated, Inc. Richard T. Thorne Jr. 18043 (757) 410-0682 rtdm@hdm-trco.com

**2012 EDITION OF NC CODE FOR:**  
EXISTING  Repair  Renovation

**BASIC BUILDING DATA**  
Construction Type:  I-A  II-A  III-A  IV  V-A  
 I-B  II-B  III-B  V-B  
Sprinklers:  No  Partial  Yes NFPA 13  NFPA 13R  NFPA 13D  
Fire District:  No  Yes (Primary)  
Building Height: (feet) 44  
Total Roof Area: (sq feet) 13,100

**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

#### FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	RATING	PROVIDED	DESIGN # FOR RATED ASSEMBLY
Roof Construction			

#### STRUCTURAL DESIGN

**DESIGN LOADS:**  
Wind Uplift Resistance:  
Basic Wind Speed 90 mph (ASCE-7)  
Exposure Category B  
Design Pressures (psf):  
Field -32.1 Perimeter Width: 4 ft.  
Perimeter -48.3 Corner Dimension: 4 ft. x 4 ft.  
Corner -48.3  
Roof System Dead Load:  
Existing System 10 psf  
Replacement System 12 psf\*  
Resulting Live Load Capacity 20 psf (no change)  
Snow Load: 15 psf

#### ENERGY REQUIREMENTS:

The following data shall be considered minimum and any special attribute required to meet the energy 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.

Climate Zone:  3  4  5

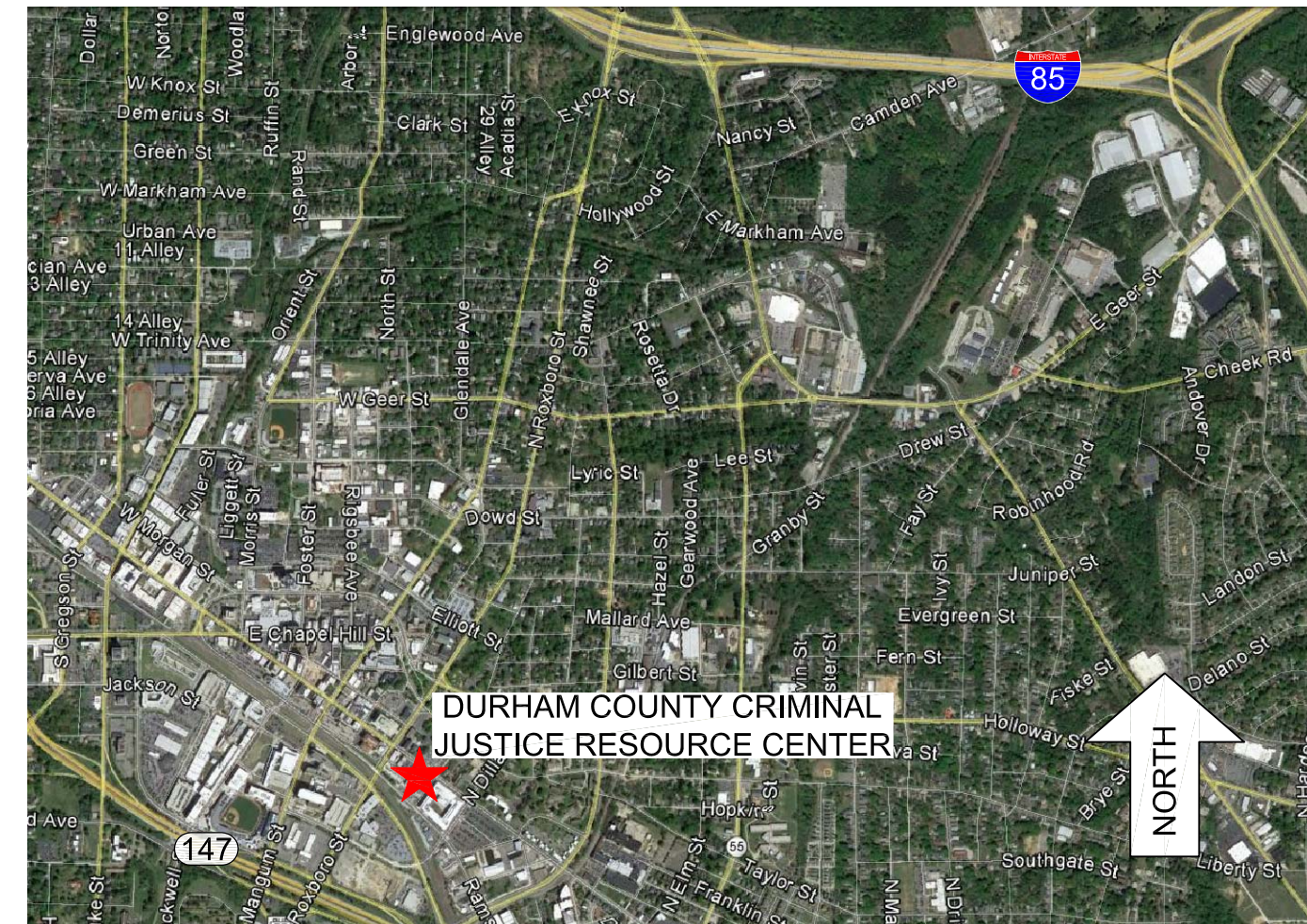
Method of Compliance:  
 Prescriptive (Energy Code)  
 Performance (Energy Code)  
 Prescriptive (ASHRAE 90.1)  
 Performance (ASHRAE 90.1)

#### THERMAL ENVELOPE

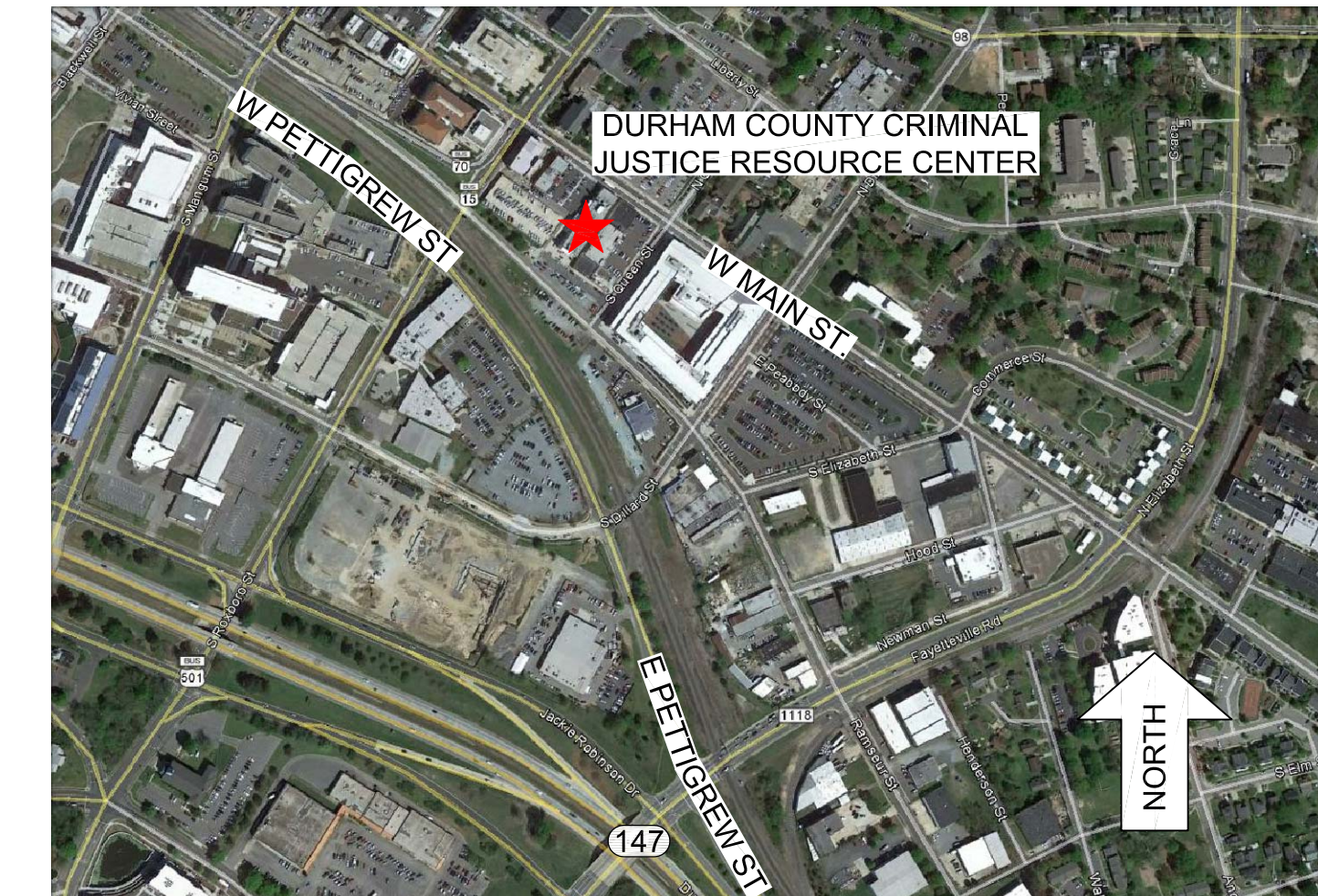
Roof/Ceiling Assembly (each assembly)  
Description of assembly: Concrete deck, 1/8 per ft. tapered lightweight insulating concrete, minimum thickness 5 inches and single-ply roof membrane.  
U-Value of total assembly: 0.05  
R-Value of insulation: 20  
Skylights in each assembly: 3  
U-Value of skylight:  
Total square footage of skylights in each assembly:

#### DRAWING INDEX

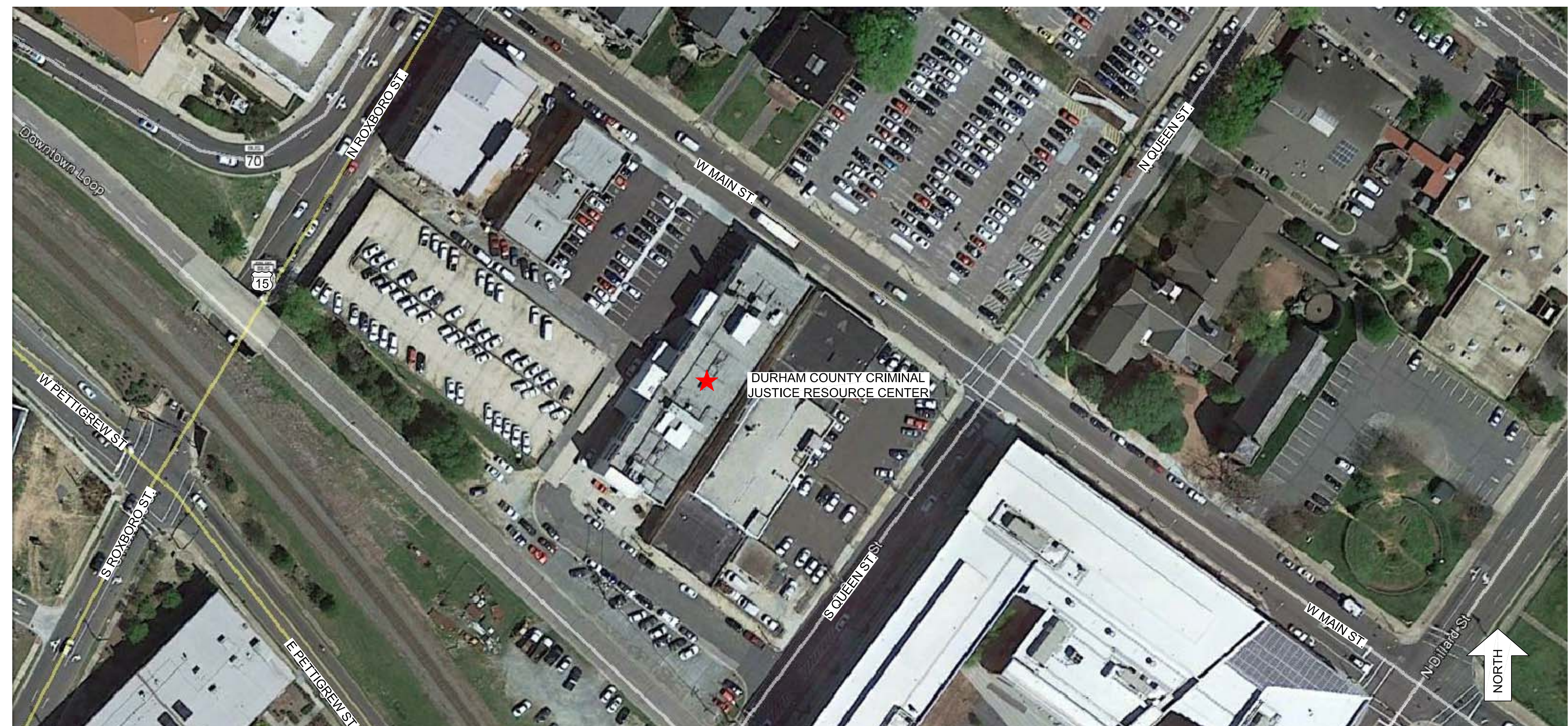
- C1 COVER SHEET
- R1 ROOF PLAN AND EQUIPMENT
- R2 ROOF PLAN AND ABOVE ROOF LEVEL
- D1 ROOF DETAILS
- ME1 MECHANICAL PLANS
- ME2 MECHANICAL PLANS



LOCATION MAP



VICINITY MAP



SITE MAP

COVER SHEET  
CRIMINAL JUSTICE RESOURCE CENTER  
REPLACEMENT OF MAIN ROOF AND HVAC UNIT  
DURHAM, NORTH CAROLINA

REVISION # REVISION DATE

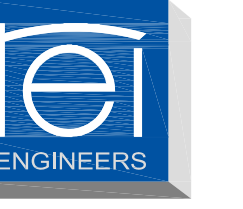
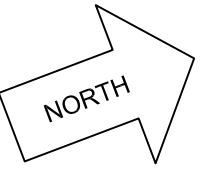

DATE: 09.21.2017

SCALE: NONE

REI PROJECT NO: 16RAL-100

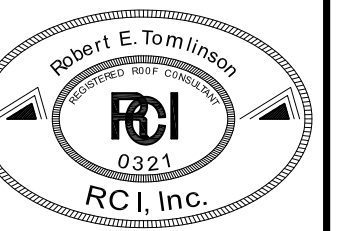
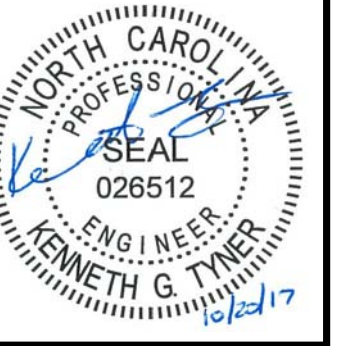
SHEET: C1



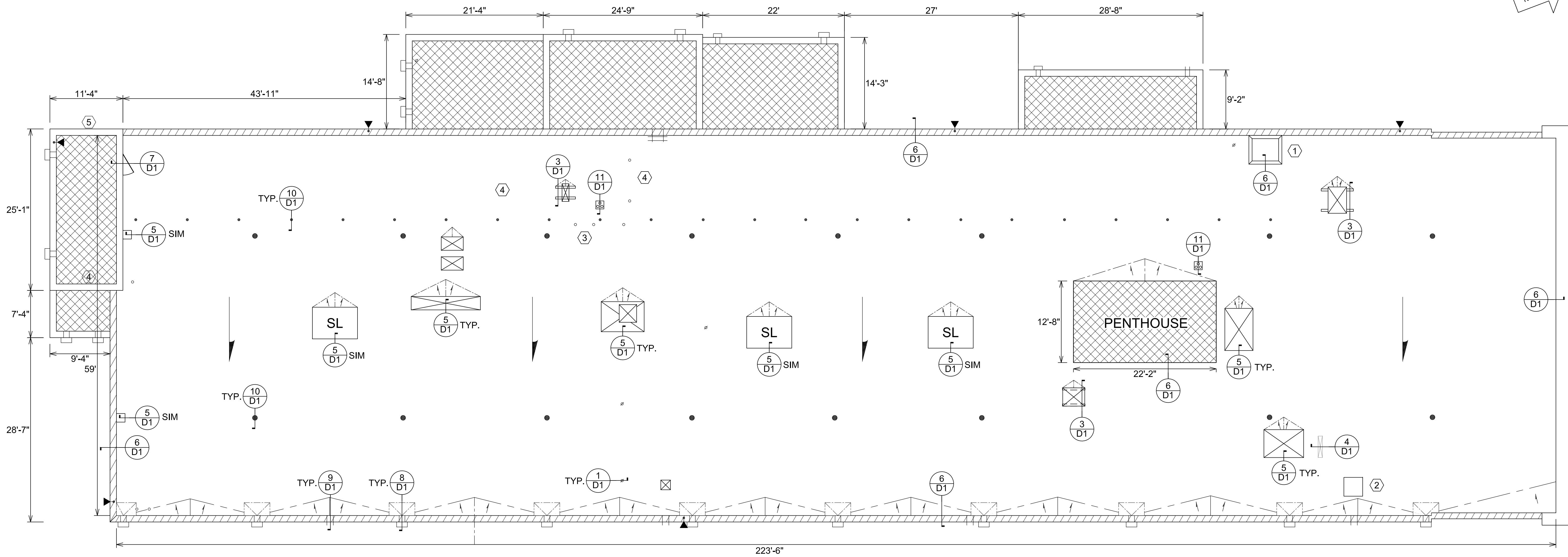


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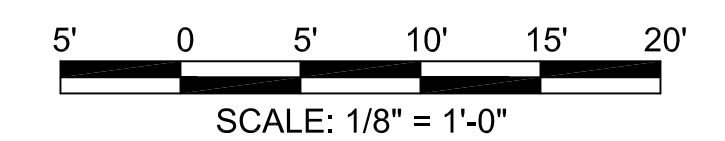
ROOF PLAN AND EQUIPMENT  
CRIMINAL JUSTICE RESOURCE CENTER  
REPLACEMENT OF MAIN ROOF AND HVAC UNIT  
DURHAM, NORTH CAROLINA



1 ROOF PLAN  
R1 1/8"=1'-0"

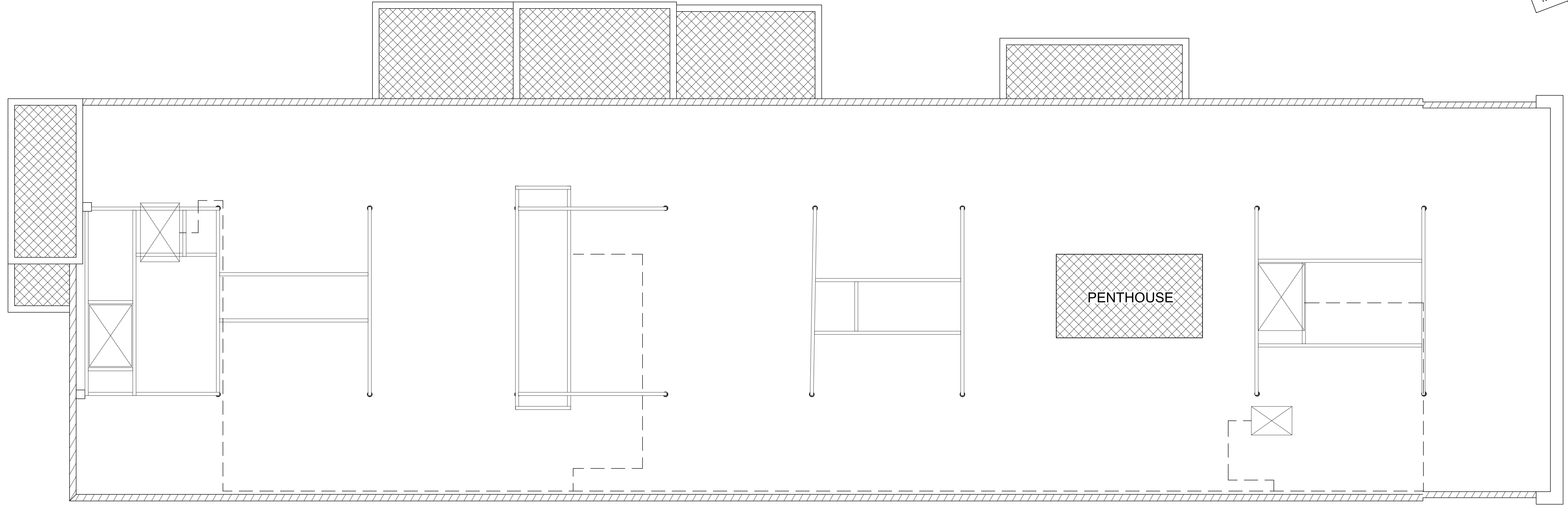
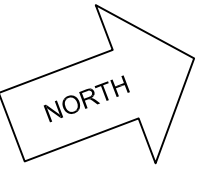
- NOTES:
- ① PREPARE CHIMNEY CAP AND APPLY BIRD CONTROL DEVICES PER SECTION 07 01 50 - PREPARATION FOR REROOFING
  - ② REMOVE ANTENNA SUPPORT AND CMU BLOCKS AND SALVAGE TO THE OWNER.
  - ③ REMOVE ABANDONED ELECTRICAL CONDUIT TO THE ROOF DECK.
  - ④ PREPARE, PRIME AND PAINT THE STEP OVER LADDERS PER SECTION 07 01 50 - PREPARATION FOR REROOFING. SET STEP OVER LADDER OVER WALK PADS.

KEY		
	PRIMARY SCUPPER	
	OVERFLOW SCUPPER	
	CLAY COPING COVER	
	NOT IN CONTRACT	
	BEAM SUPPORT OVER ROOF LEVEL	
	INSULATION AND LWIC SLOPE	
	DOOR	
	SKYLIGHT	
	LADDER	
	COPING MOUNTED LIGHT FIXTURE	



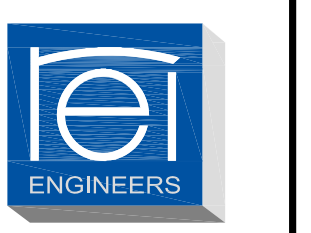
REVISION #	REVISION DATE

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SCALE: 1/8"=1'-0"  
REI PROJECT NO: 16RAL-100  
SHEET: R1



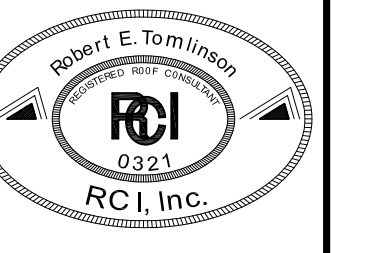
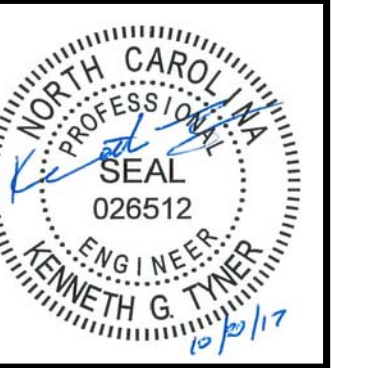
1 R2 GAS LINES AND EQUIPMENT SUPPORTS ABOVE THE ROOF LEVEL  
1/8"=1'-0"

KEY					
	PRIMARY SCUPPER		SOIL STACK		DOOR
	OVERFLOW SCUPPER		CONDUIT		SKYLIGHT
	CLAY COPING COVER		SUPPORT PIPE		CHIMNEY
	NOT IN CONTRACT		EQUIPMENT CURB		LADDER
	COPING MOUNTED LIGHT FIXTURE		SUPPORT		GAS LINE
			MULTI-PIPE PENETRATION		BEAM SUPPORT OVER ROOF LEVEL



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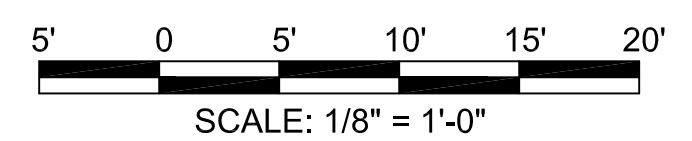
ROOFING, WATERPROOFING  
AND BUILDING ENVELOPE  
ENGINEERS & CONSULTANTS  
CERTIFICATE NO. C-1520



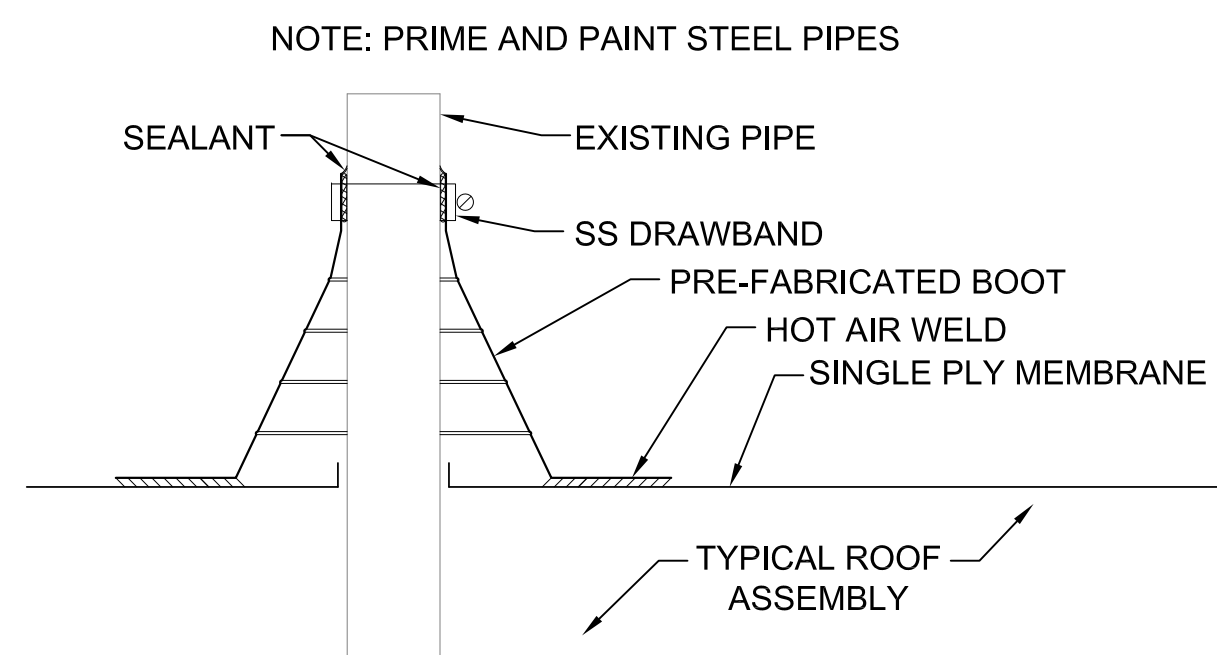
ROOF PLAN AND ABOVE ROOF LEVEL  
CRIMINAL JUSTICE RESOURCE CENTER  
REPLACEMENT OF MAIN ROOF AND HVAC UNIT  
DURHAM, NORTH CAROLINA

REVISION #	REVISION DATE

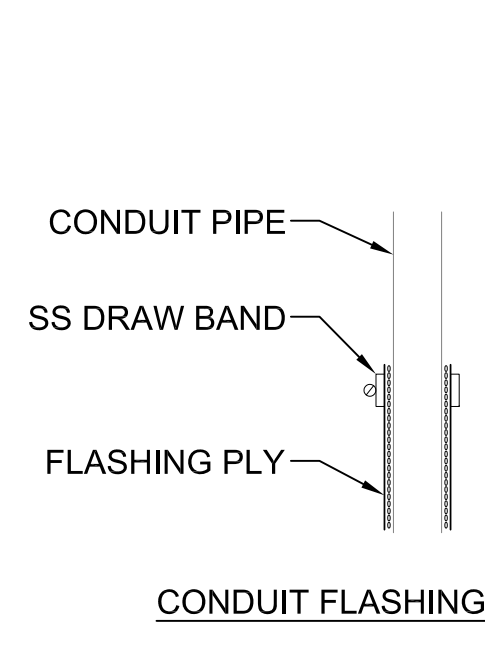
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REI PROJECT NO: 16RAL-100  
SHEET:



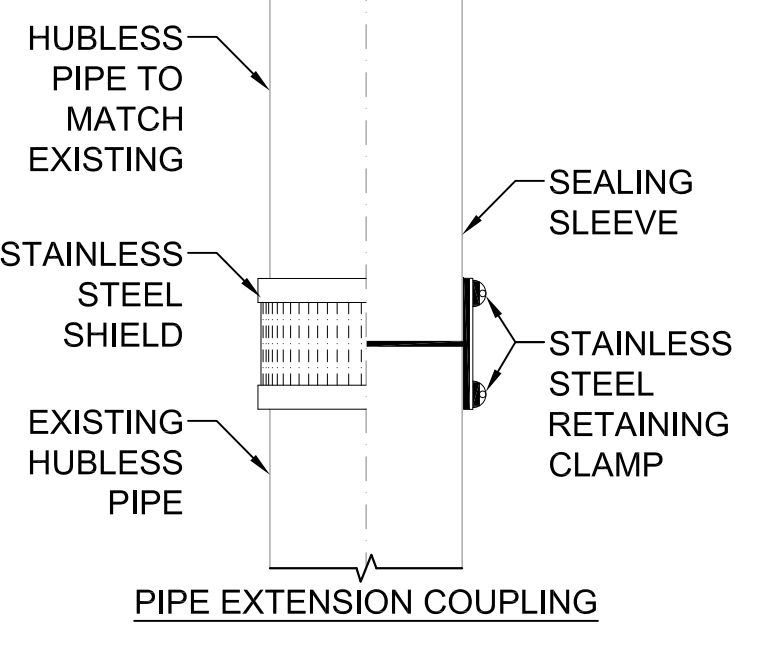
R2



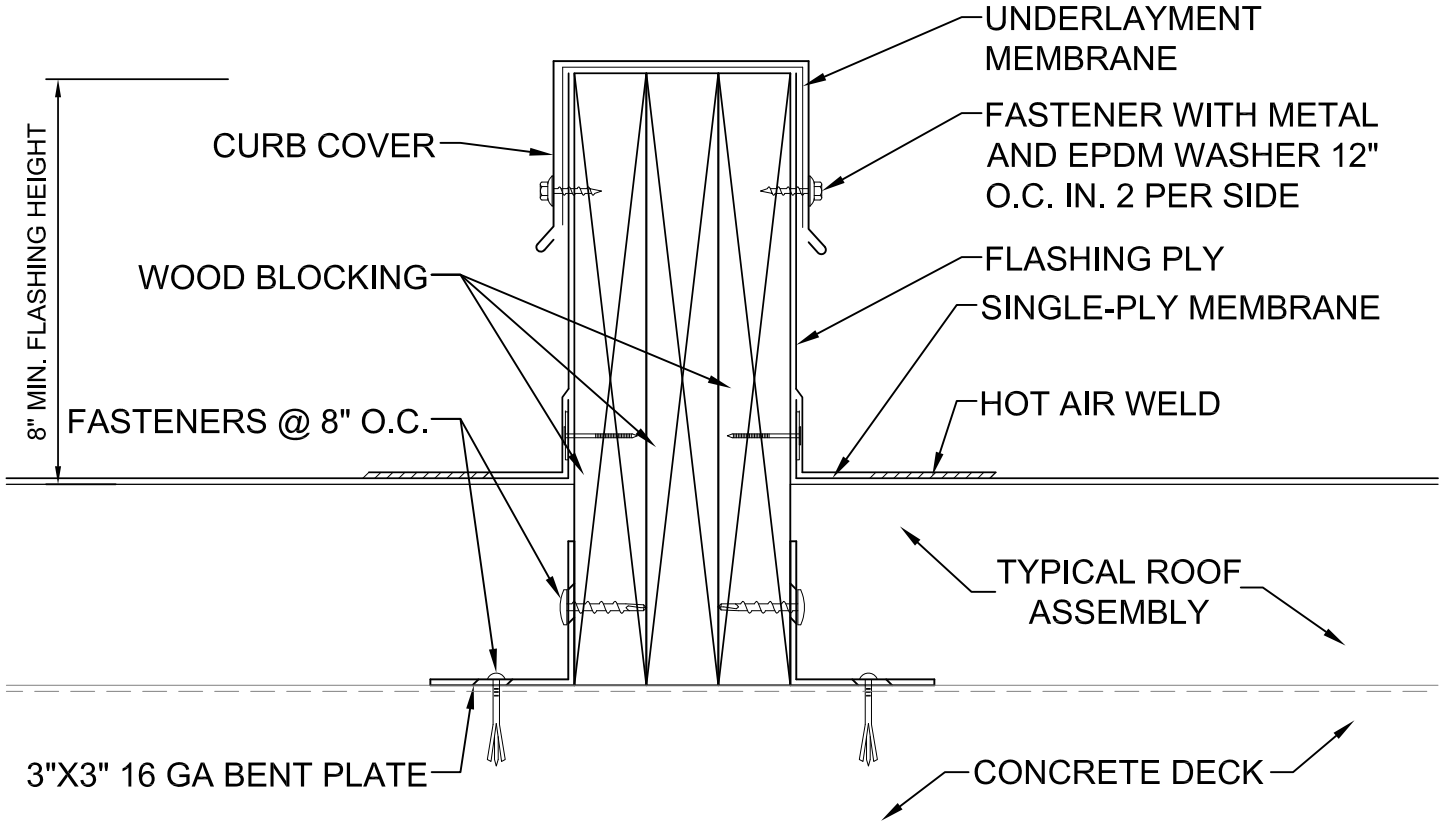
1 D1 VENT PIPE PENETRATION  
3'=1'-0"



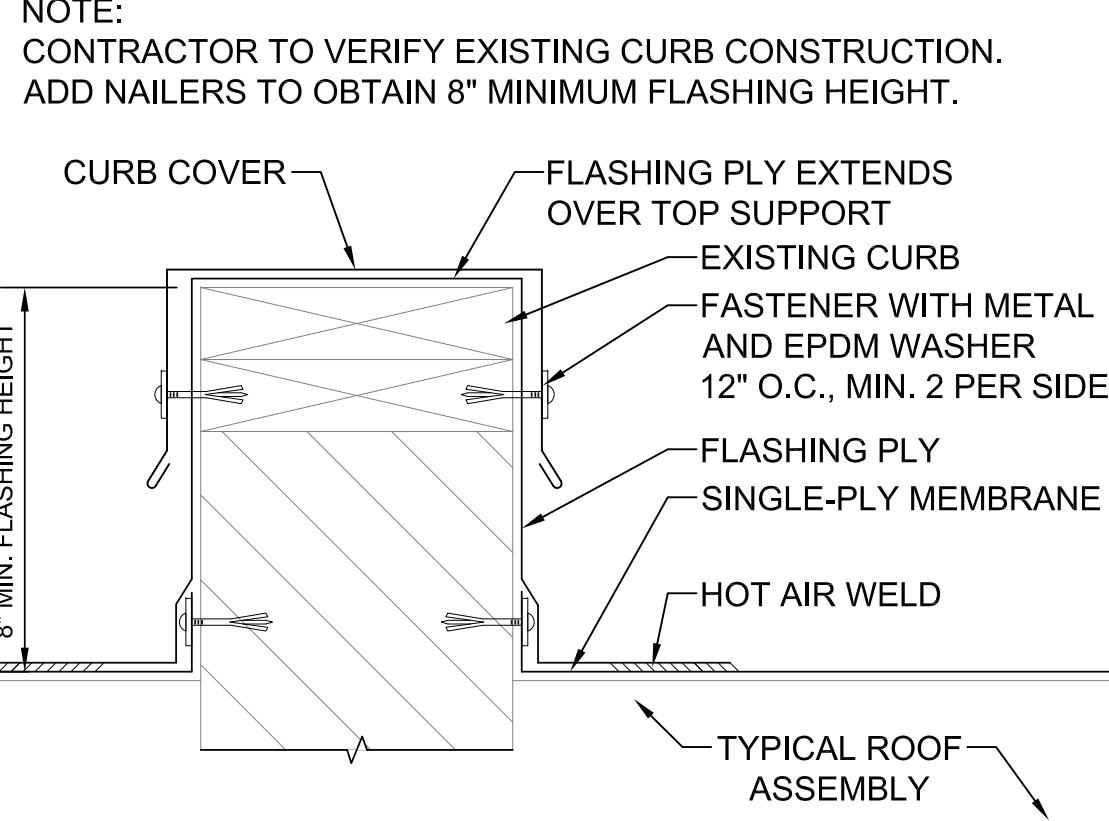
2 D1 PIPE EXTENSION  
3'=1'-0"



3 D1 NEW EQUIPMENT SUPPORT  
3'=1'-0"

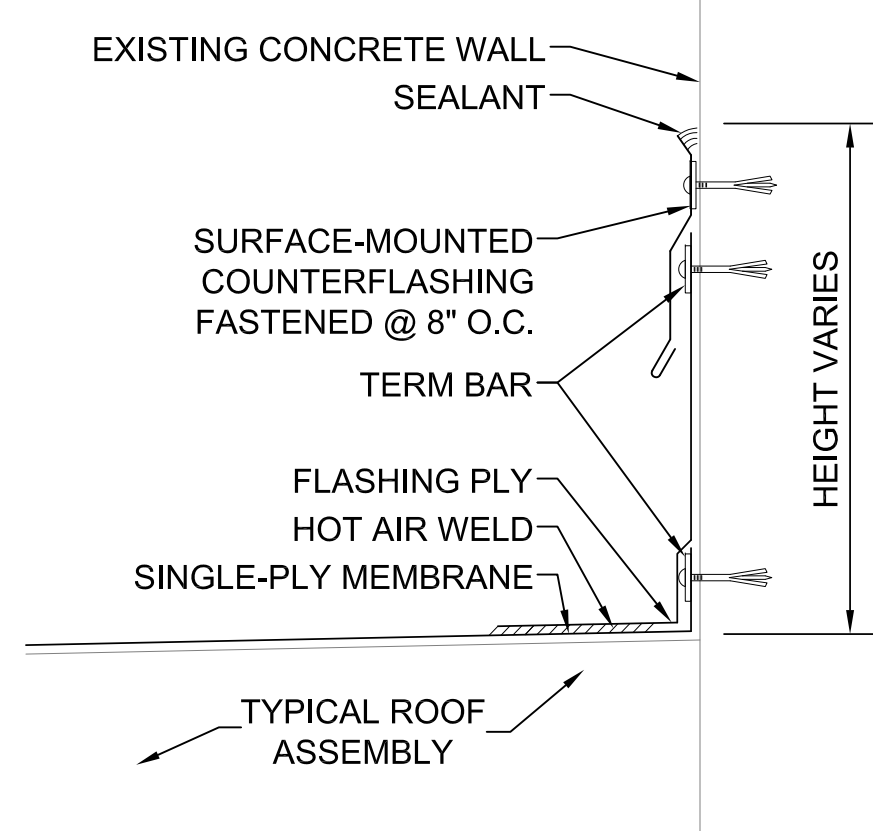


4 D1 EXISTING EQUIPMENT SUPPORT CURB  
3'=1'-0"

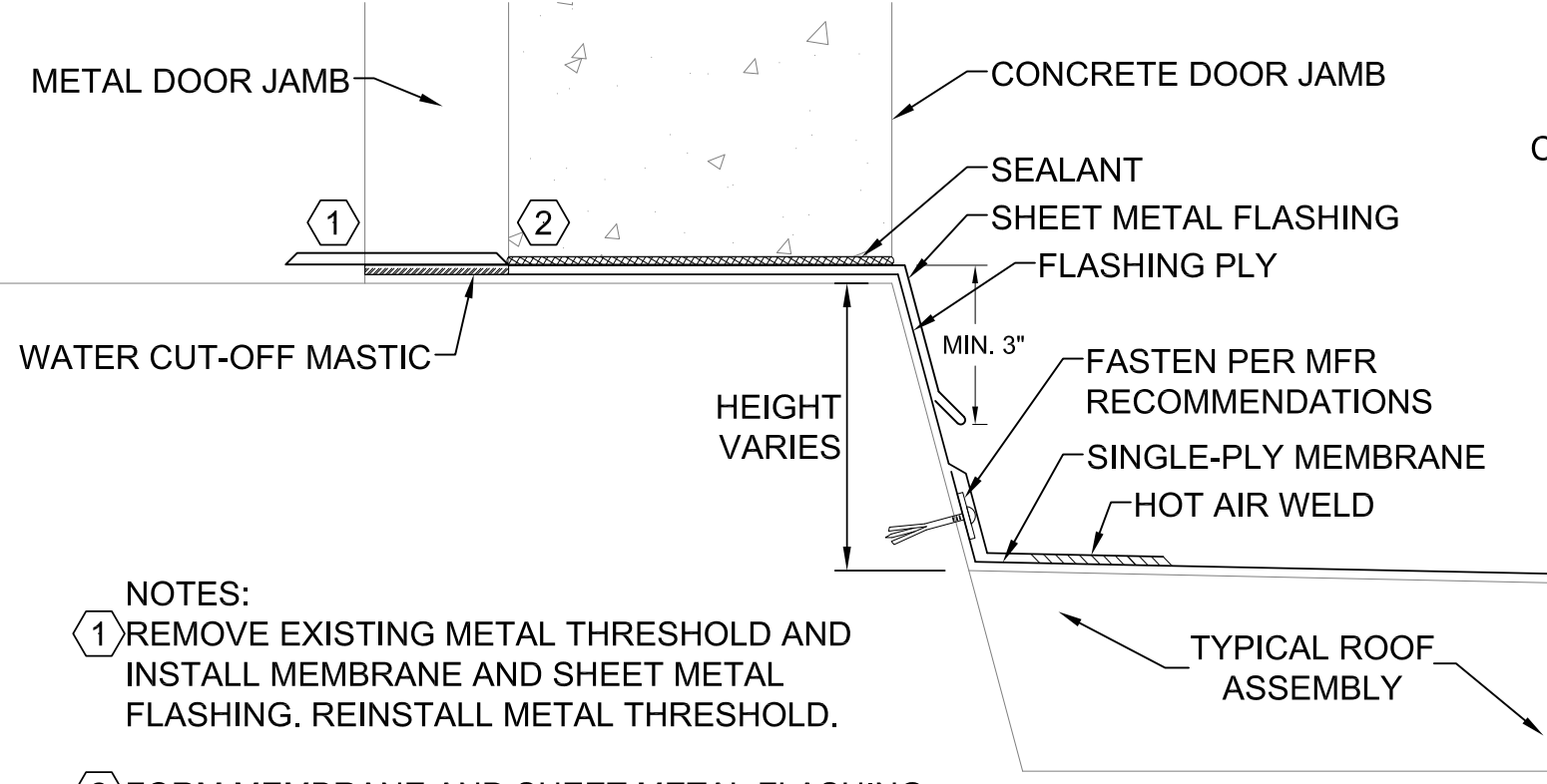


5 D1 EQUIPMENT CURB  
3'=1'-0"

NOTES:  
1. CONTRACTOR TO VERIFY EXISTING CONSTRUCTION.  
2. REPLACE DETERIORATED OR DAMAGED NAILERS.  
3. ADD NAILERS TO OBTAIN 8" MINIMUM FLASHING HEIGHT.  
4. INSTALL CRICKETS ON UPSLOPE SIDE OF CURBS.

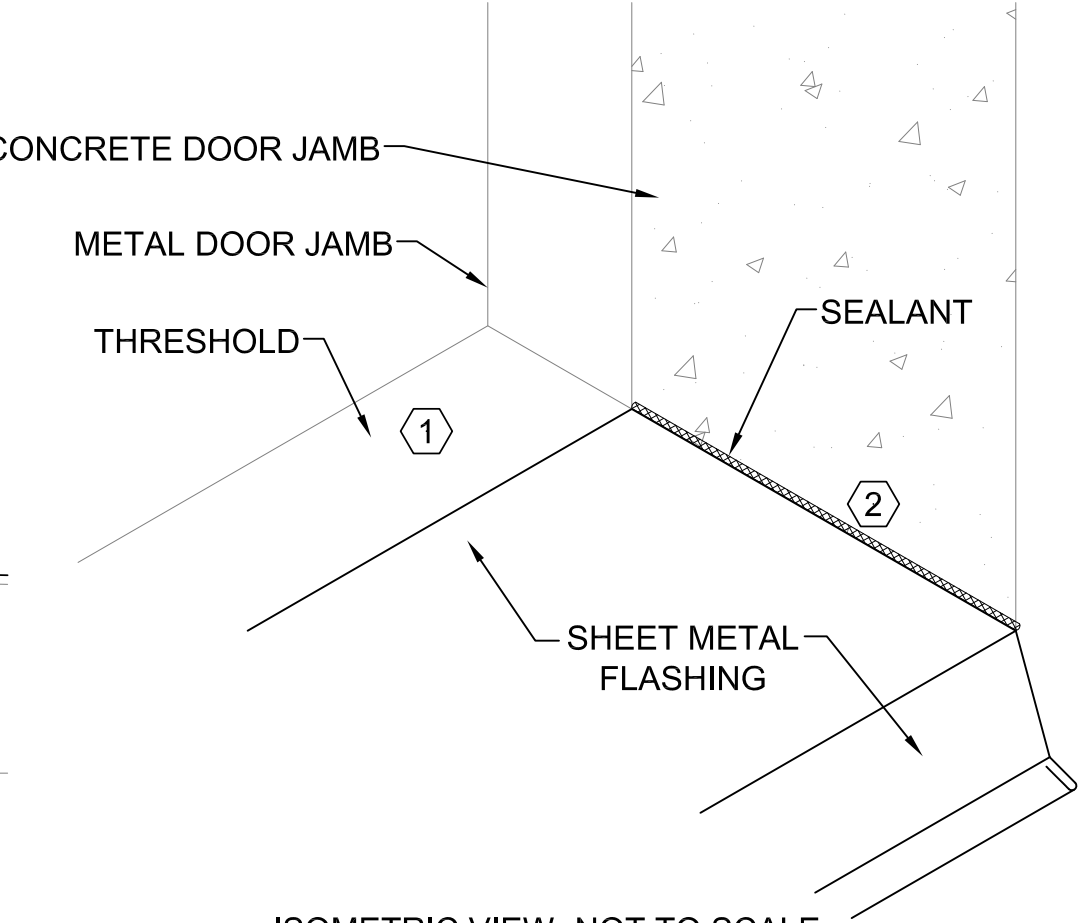


6 D1 WALL FLASHING  
3'=1'-0"

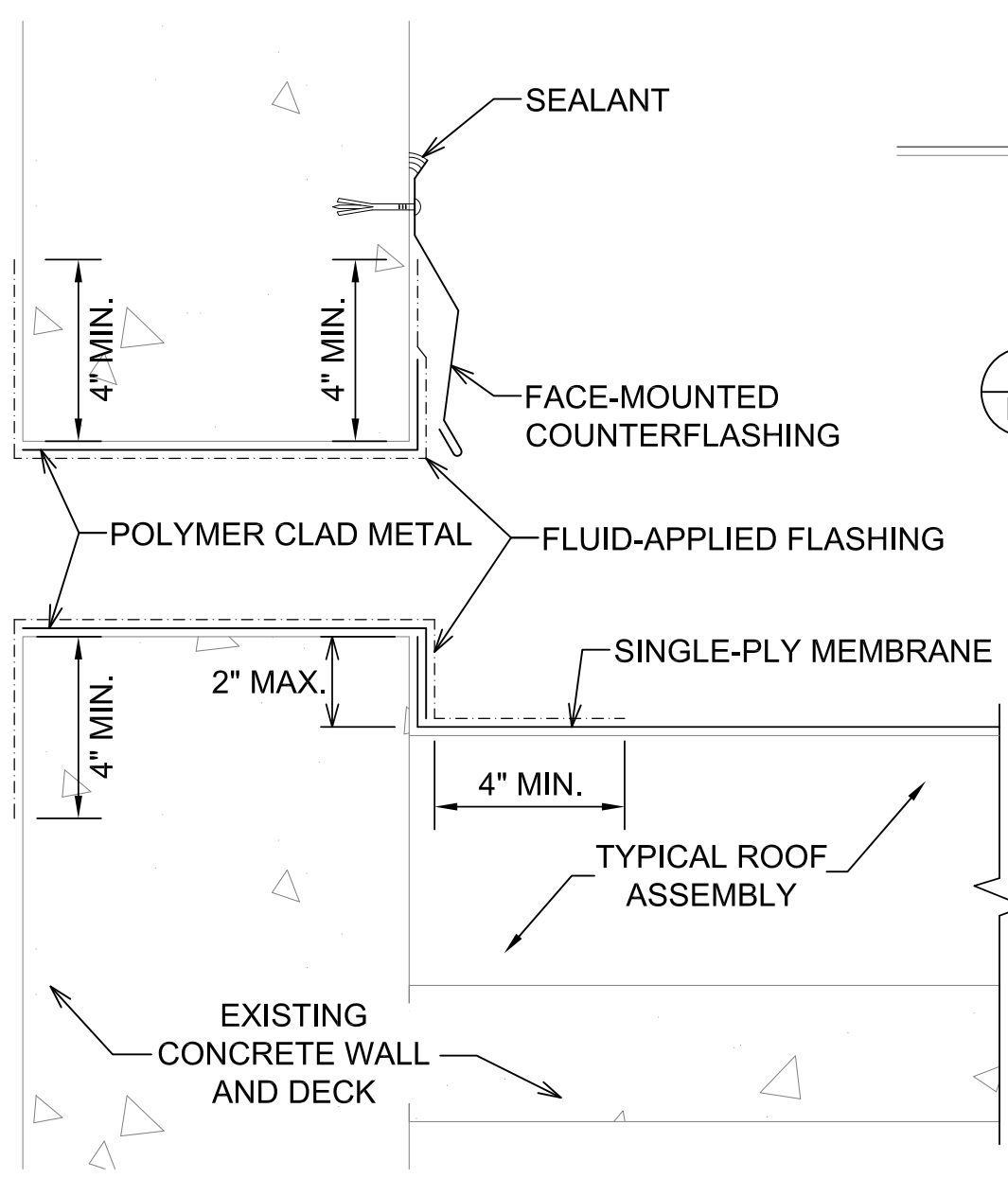


7 D1 DOOR THRESHOLD FLASHING  
3'=1'-0"

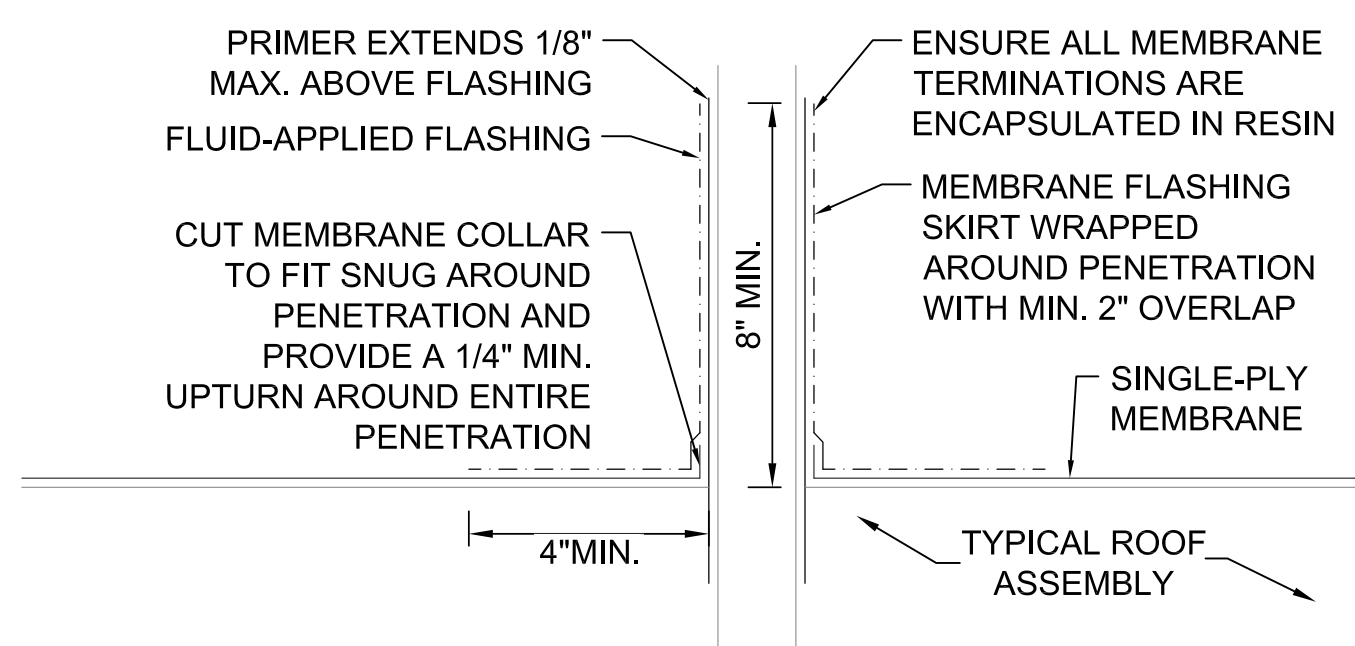
NOTES:  
1. REMOVE EXISTING METAL THRESHOLD AND INSTALL MEMBRANE AND SHEET METAL FLASHING. REINSTALL METAL THRESHOLD.  
2. FORM MEMBRANE AND SHEET METAL FLASHING TO FIT AGAINST THE METAL AND CONCRETE DOOR JAMBS. INSTALL A BEAD OF SEALANT BETWEEN THE EDGE OF THE SHEET METAL FLASHING AND THE DOOR JAMBS.



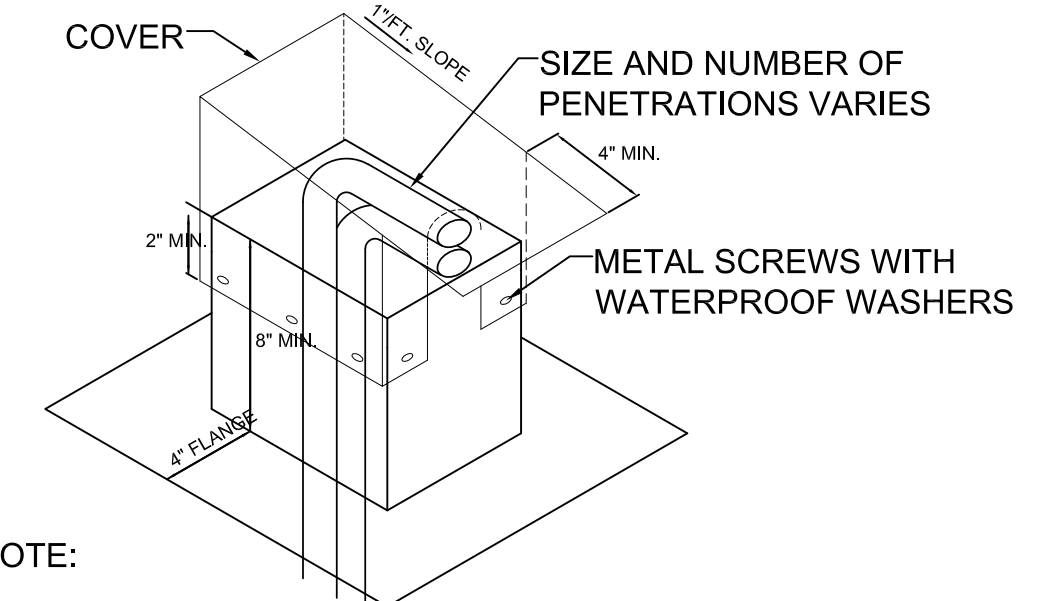
8 D1 EXISTING PRIMARY SCUPPER  
3'=1'-0"



9 D1 EXISTING OVERFLOW SCUPPER  
3'=1'-0"

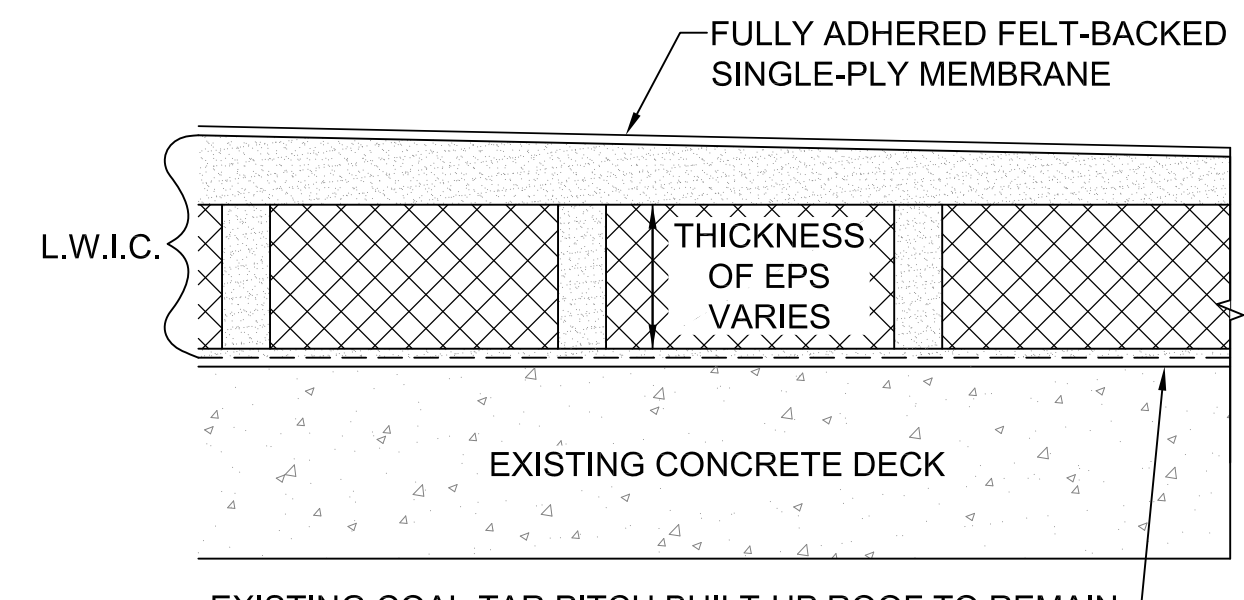


10 D1 PIPE PENETRATION FLUID-APPLIED FLASHING  
3'=1'-0"



11 D1 MULTIPLE PIPE PENETRATION  
3'=1'-0"

NOTE:  
CONTRACTOR TO EXTEND/MODIFY CONDUIT/PIPING LINES AS REQUIRED TO MAINTAIN VERTICAL ENTRY AND HORIZONTAL EXIT.

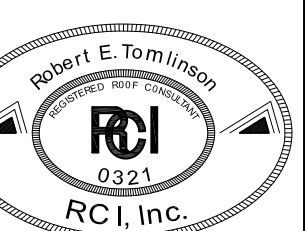


12 D1 TYPICAL ROOF ASSEMBLY  
3'=1'-0"



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ENGINEERS & CONSULTANTS  
CERTIFICATE NO. C-1520



ROOF DETAILS  
CRIMINAL JUSTICE RESOURCE CENTER  
REPLACEMENT OF MAIN ROOF AND HVAC UNIT  
DURHAM, NORTH CAROLINA

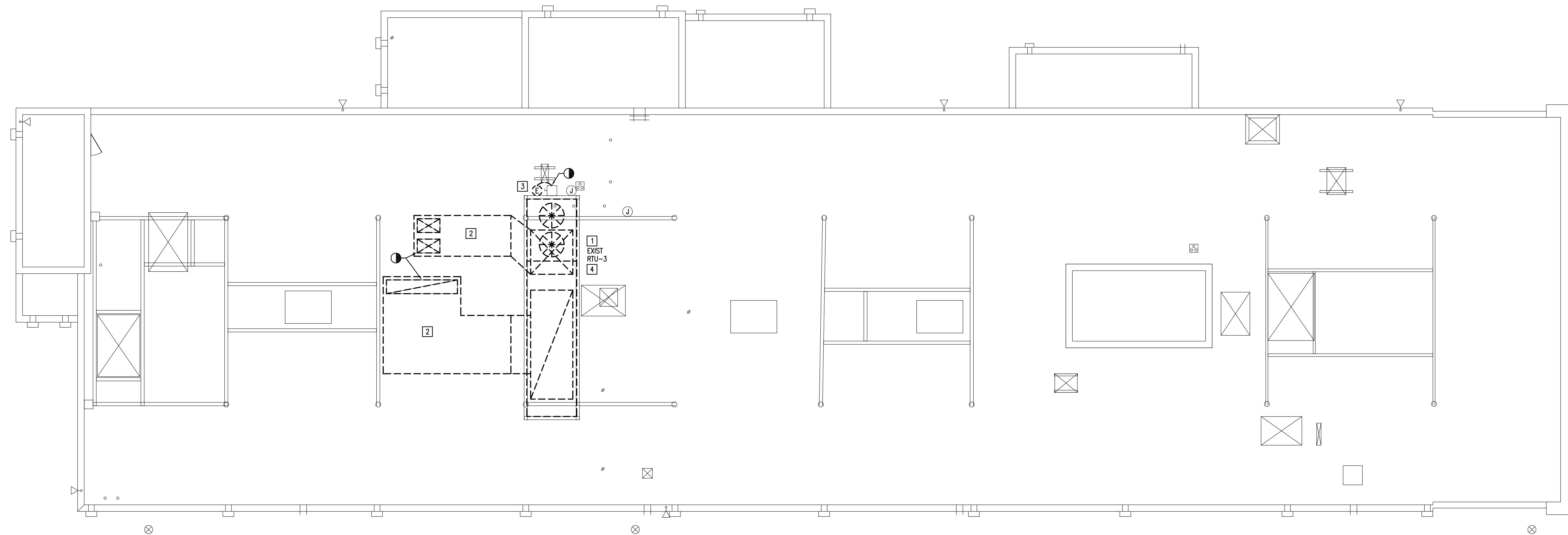
REVISION # REVISION DATE


DATE: 09.21.2017

SCALE: AS NOTED

REI PROJECT NO: 16RAL-100

SHEET: D1



**MECHANICAL ROOF PLAN - PHASE 1**

SCALE: 1/8" = 1'-0"

**WORK NOTES**

- 1 REMOVE ROOFTOP UNIT. MAINTAIN EXISTING STRUCTURAL FRAME FOR REUSE IN NEW WORK. DISCONNECT BUILDING SUPPLY AND RETURN DUCTWORK FROM ROOFTOP UNIT AND MAINTAIN FOR CONNECTION IN NEW WORK.
- 2 REMOVE SUPPLY AND RETURN DUCTWORK FROM EXISTING ROOFTOP UNIT BACK TO POINT WHERE IT PENETRATES THE ROOF TO SERVE THE BUILDING AIR DISTRIBUTION SYSTEM.
- 3 REMOVE ELECTRICAL CONNECTION TO ROOFTOP UNIT. REMOVE ASSOCIATED CONDUIT AND WIRING BACK TO EXISTING DISCONNECT SWITCH. MAINTAIN EXISTING DISCONNECT SWITCH AND CIRCUIT FOR CONNECTION IN NEW WORK.
- 4 RETAIN SCHNEIDER ELECTRIC TO REMOVE THE EXISTING ANDOVER CONTROL SYSTEM FROM UNIT. COMPONENTS SHALL BE STORED FOR INSTALLATION ON UNIT.

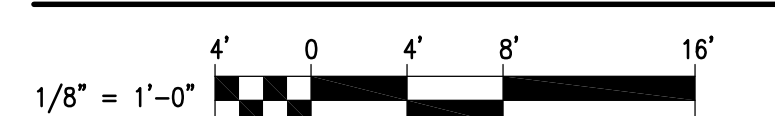
**GENERAL COORDINATION NOTES** (APPLY TO WORK NOTES, ALL SHEETS)

- 1 COORDINATE LOCATION AND REQUIREMENTS WITH OTHER TRADES PRIOR TO BEGINNING ANY WORK.
- 2 COORDINATE EXACT LOCATION AND REQUIREMENTS PRIOR TO BEGINNING ANY WORK.
- 3 COORDINATE EXACT LOCATION AND LIMITS OF DEMOLITION PRIOR TO BEGINNING ANY WORK.

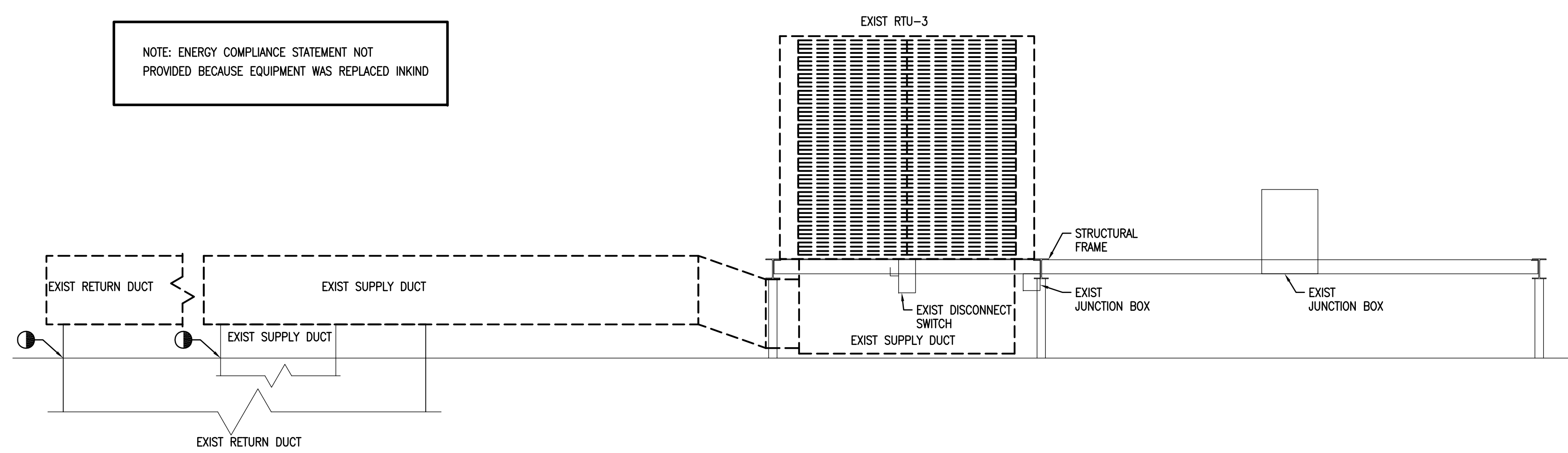
**LEGEND**

- LEGEND NOTES:**
1. ALL DARK AND DASHED SYMBOLS INDICATE DEVICES AND EQUIPMENT TO BE REMOVED OR LOCATED UNDERGROUND AS NOTED.
  2. ALL DARK AND SOLID SYMBOLS INDICATE DEVICES AND EQUIPMENT AS NEW WORK.
  3. ALL LIGHT AND SOLID SYMBOLS INDICATE DEVICES AND EQUIPMENT THAT ARE EXISTING TO REMAIN.
- POINT OF DEMOLITION LIMIT  
 POINT OF CONNECTION  
 REVISION DESIGNATION  
 DEMOLITION NOTE DESIGNATION  
 NEW WORK NOTE DESIGNATION  
 GENERAL NOTE
- 12 x 12 RECTANGULAR DUCT, INSIDE CLEAR DIMENSIONS (HORIZONTAL X VERTICAL) INDICATED  
 JUNCTION BOX  
 DISCONNECT SWITCH FUSIBLE OR NON-FUSIBLE, 600V, 3 POLE SWITCH & FUSE (IF ANY) AS NOTED.

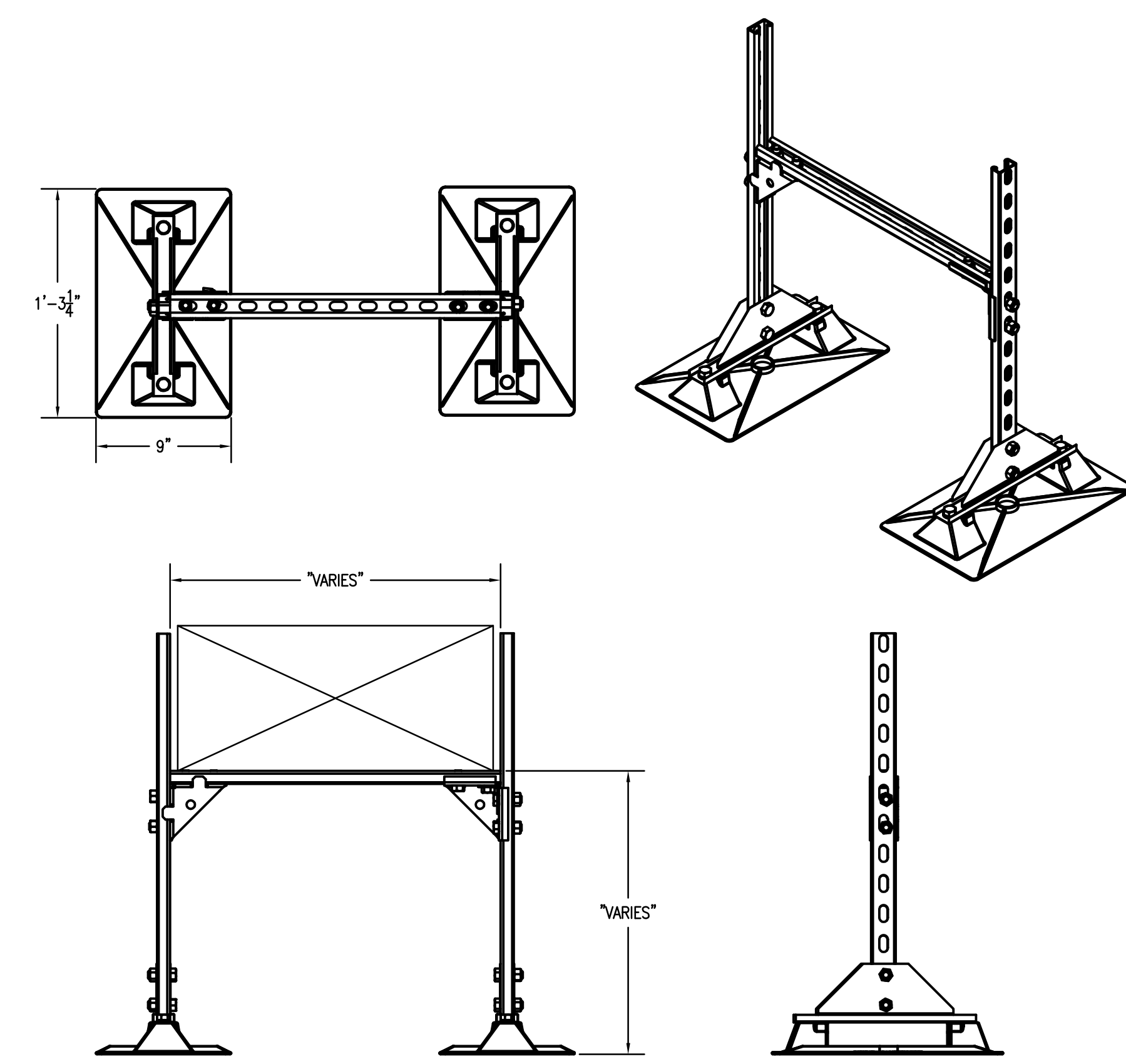
**GRAPHIC SCALE**



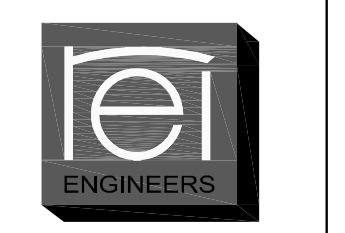
NOTE: ENERGY COMPLIANCE STATEMENT NOT PROVIDED BECAUSE EQUIPMENT WAS REPLACED INKIND



**MECHANICAL ELEVATION - PHASE 1 - DEMOLITION**  
NO SCALE



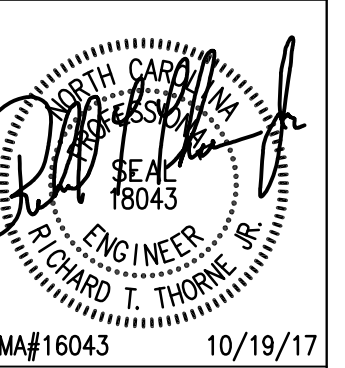
**ROOFTOP DUCT SUPPORT DETAIL**  
NO SCALE



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ROOFING, WATERPROOFING  
AND BUILDING ENVELOPE  
ENGINEERS & CONSULTANTS

RALEIGH  
CHARLOTTE | GREENVILLE  
CHARLESTON | FORT MYERS  
CERTIFICATE NO. C-1520



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VA LICENSE NO. 040703711  
NC LICENSE NO. C-1896



MECHANICAL PLANS  
CRIMINAL JUSTICE RESOURCE CENTER  
REPLACEMENT OF MAIN ROOF AND HVAC UNIT  
DURHAM, NORTH CAROLINA

REVISION #	REVISION DATE
1	
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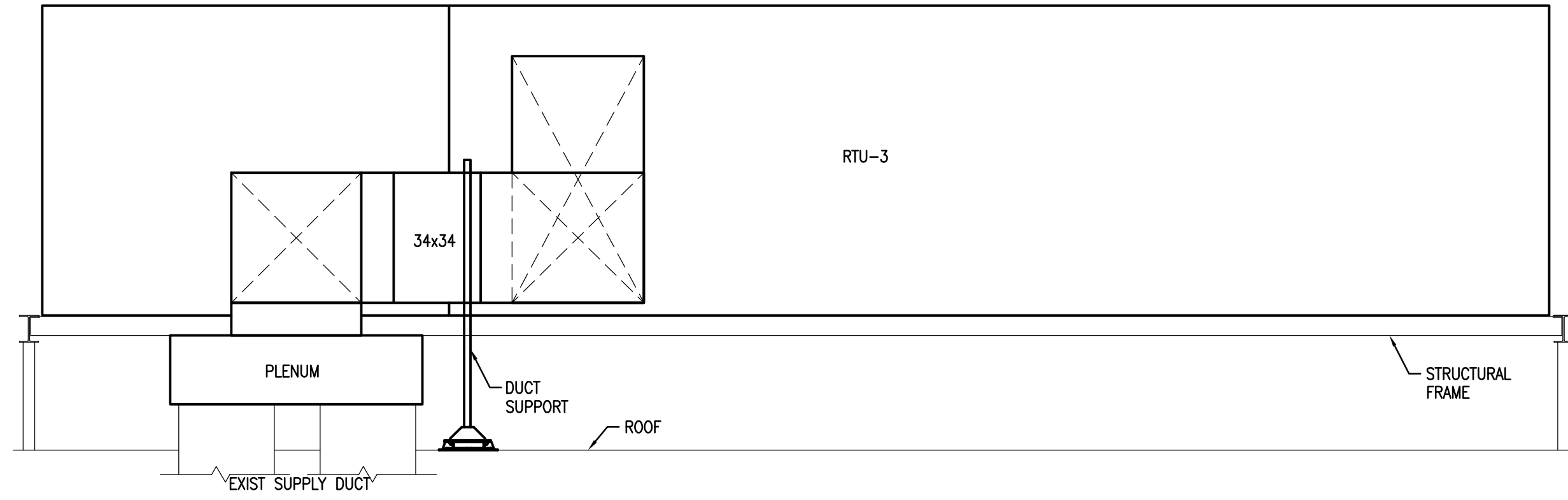
DATE: 10.19.2017  
SCALE: AS NOTED  
REI PROJECT NO: 16RAL-100  
SHEET:

**ME1**

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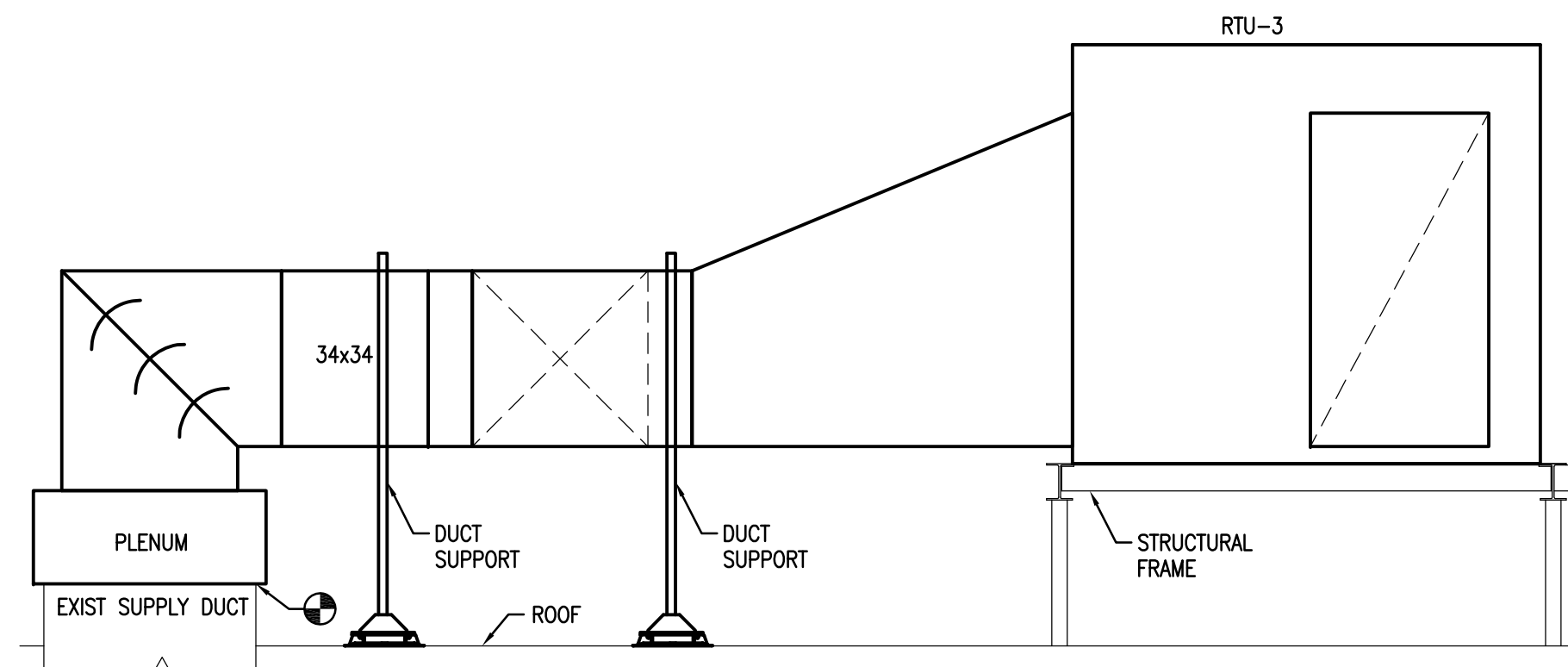
GAS ROOFTOP AIR CONDITIONING UNIT SCHEDULE																						
MARK	SUPPLY FAN				RETURN FAN			COOLING			HEATING			POWER					MIN ENERGY RATING			REMARKS
	SA (CFM)	OA (CFM)	ESP (IN H2O)	MAX FAN (BHP)	RA (CFM)	ESP (IN H2O)	MAX FAN (BHP)	TC (MBH)	SHC (MBH)	MIN STAGES	TC INPUT (MBH)	TC OUTPUT (MBH)	MIN STAGES	VOLTS	PHASE	FLA	MCA	MOCB	SEER	EER	HEAT	
RTU-3	11,500	2,000	3.5	25	11,500	1.0	7.5	426.0	315.21	4	350.0	280.0	2	208	3	267	281	350	-	-	80%	BASIS OF DESIGN TRANE MODEL INTELLIPAK SFH40E

- NOTES:
- COOLING CAPACITY BASED ON EAT= 80°F/67°F (DB/WB) AND 105°F AMBIENT AIR TEMPERATURE.
  - HEATING CAPACITIES BASED ON LOW INPUT HEAT
  - EVAPORATOR FAN & MOTOR SELECTED FOR STANDARD STATIC.
  - HIGH CAPACITY UNIT.
  - SUPPLY FAN SHALL RUN CONTINUOUSLY WHEN BUILDING IS OCCUPIED.
  - PROVIDE 0-100% AIR SIDE ECONOMIZER PACKAGE WITH CONTROLS.
  - POWER SHALL BE SINGLE POINT CONNECTION.
  - PROVIDE OPTIONAL CONVENIENCE RECEPTACLE. COORDINATE POWER CONNECTION WITH ELECTRICAL CONTRACTOR.



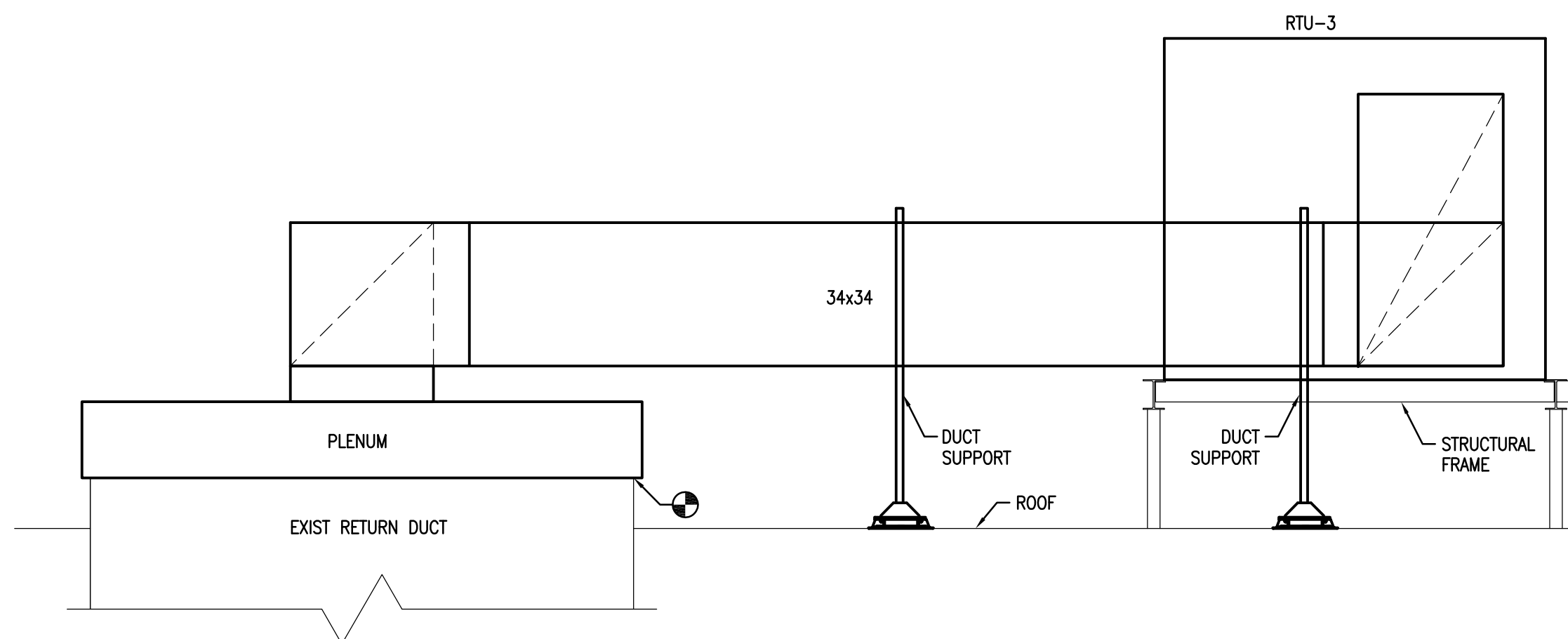
**MECHANICAL ELEVATION A-A - PHASE 2 - SUPPLY DUCTWORK**

NO SCALE



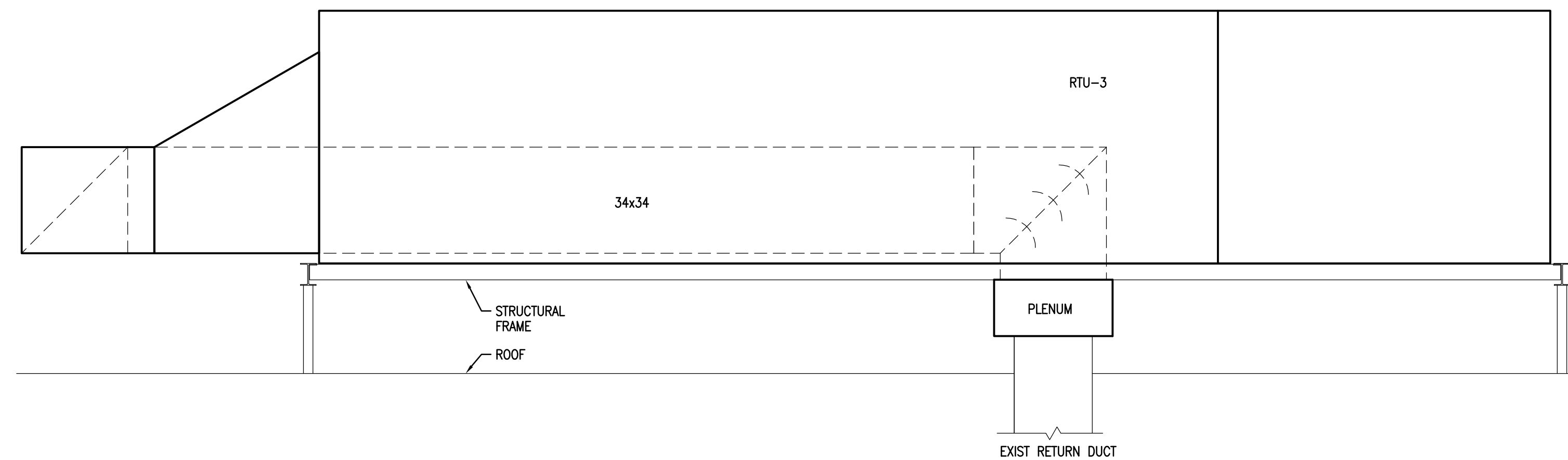
**MECHANICAL ELEVATION B-B - PHASE 2 - SUPPLY DUCTWORK**

NO SCALE



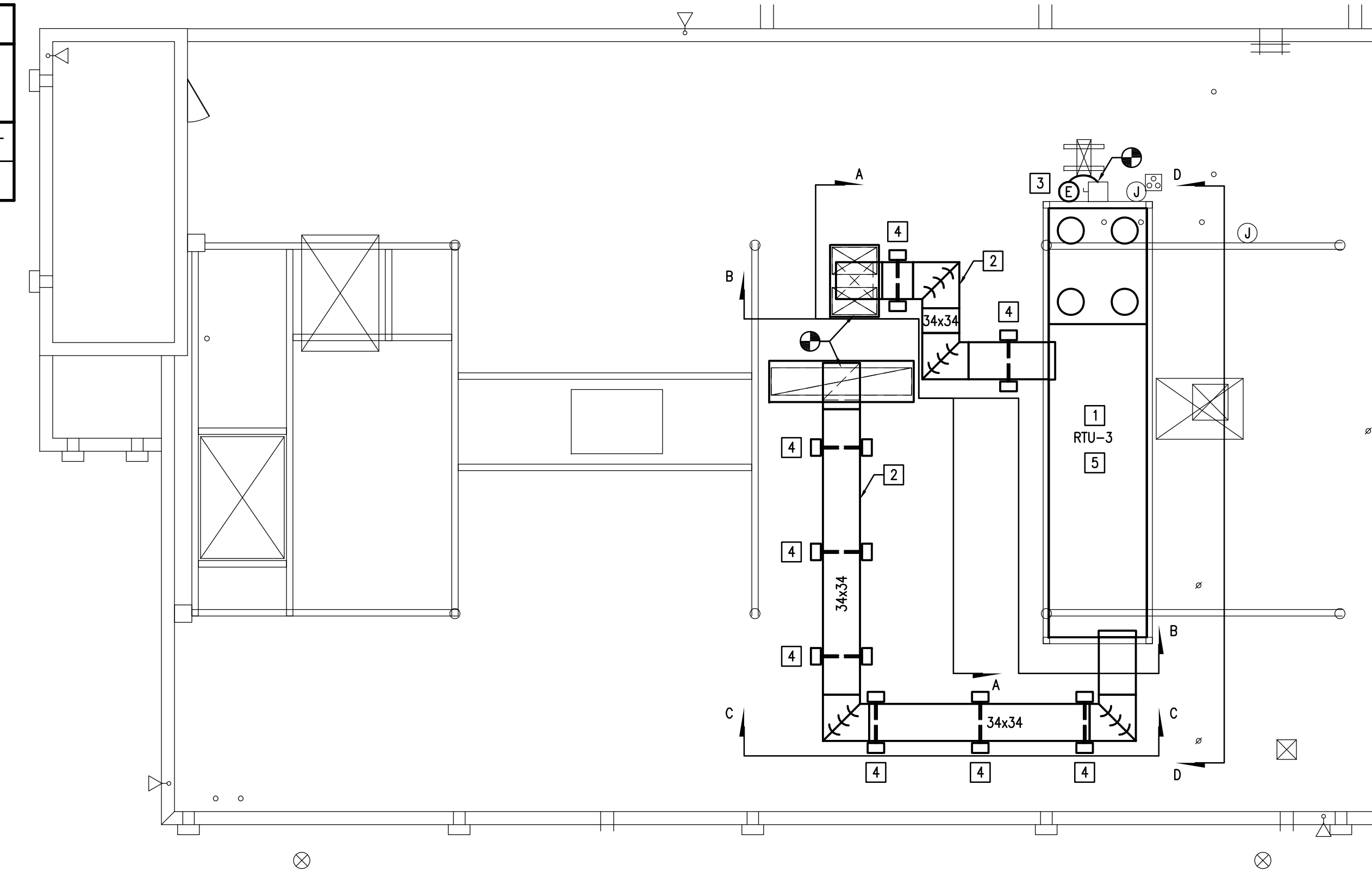
**MECHANICAL ELEVATION C-C - PHASE 2 - RETURN DUCTWORK**

NO SCALE



**MECHANICAL ELEVATION D-D - PHASE 2 - RETURN DUCTWORK**

NO SCALE

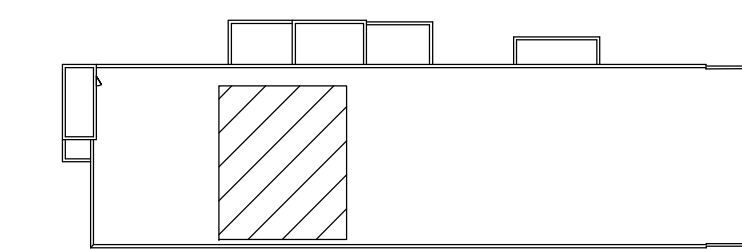


**MECHANICAL PARTIAL ROOF PLAN - PHASE 2**

SCALE: 1/8" = 1'-0"

**WORK NOTES**

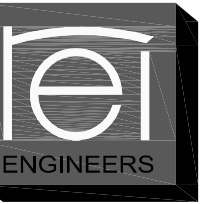
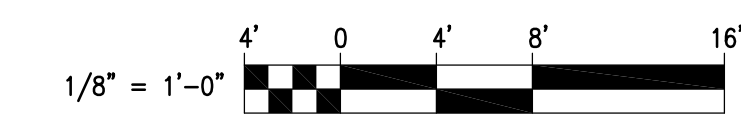
- PROVIDE ROOFTOP UNIT AS SCHEDULED. INSTALL ON EXISTING STRUCTURAL FRAME. PROVIDE GAS PIPING AND ALL REQUIRED MATERIALS TO CONNECT TO EXISTING GAS PIPING. PROVIDE ALL REQUIRED MATERIALS AND LABOR FOR A COMPLETE AND OPERATIONAL SYSTEM.
- PROVIDE SUPPLY/RETURN DUCTWORK WITH FULL SIZED PLENUM AS INDICATED. CONNECT ROOFTOP UNIT TO EXISTING DUCTWORK SERVING THE BUILDING. TRANSITION AS REQUIRED. PROVIDE ALL REQUIRED MATERIALS AND LABOR FOR A COMPLETE AND OPERATIONAL SYSTEM.
- PROVIDE ELECTRICAL CONNECTION FOR ROOFTOP UNIT. PROVIDE CONDUIT AND WIRING AS REQUIRED TO CONNECT TO EXISTING DISCONNECT SWITCH. PROVIDE ALL REQUIRED MATERIALS AND LABOR FOR A COMPLETE CONNECTION.
- PROVIDE DUCT SUPPORTS AS INDICATED. DUCT SUPPORT SHALL BE MIRO INDUSTRIES MODEL 6-DS-HDG OR ENGINEER APPROVED EQUAL. SEE DUCT SUPPORT DETAIL.
- RETAIN SCHNEIDER ELECTRIC TO REINSTALL STORED ANDOVER CONTROLS. ALL COMPONENTS AND PROGRAMMING SHALL BE COMPLETED BY SCHNEIDER ELECTRIC. THE RTU EQUIPMENT MANUFACTURER SHALL PROVIDE NECESSARY SUPPORT TO CONNECT AND TRANSFER ALL DATA AND POINTS. ALL EXISTING POINTS SHALL BE TRANSFERRED TO NEW UNIT. PROVIDE ALL REQUIRED MATERIALS AND LABOR FOR A COMPLETE AND OPERATIONAL SYSTEM.



**KEY PLAN**

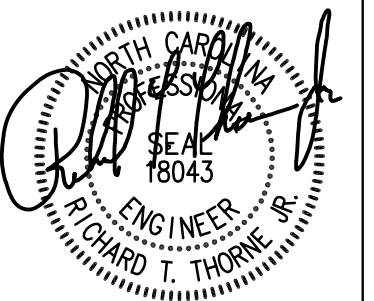
NO SCALE

**GRAPHIC SCALE**



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HDM#16043 10/19/17



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NC LICENSE NO. C-1886



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REPLACEMENT OF MAIN ROOF AND HVAC UNIT  
DURHAM, NORTH CAROLINA

REVISION # REVISION DATE

1	
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DATE:

10.19.2017

SCALE:

AS NOTED

REI PROJECT NO:

16RAL-100

SHEET:

**ME2**