



SPECIFICATIONS
FOR
JACKSON COUNTY, NC
SMOKY MOUNTAIN HIGH SCHOOL
FOOTBALL FIELD LIGHTING
SYLVA, NORTH CAROLINA

Issued for Bidding: April 22, 2026



NOTICE TO BIDDERS

Proposals will be received by Jackson County, North Carolina, *in the offices of Jackson Co. Public Schools., 398 Hospital Rd. Sylva, NC 28779* up to 2:00 p.m., on May 13, 2026, and immediately opened for the furnishing of labor, material and equipment to upgrade the football field lighting at Smoky Mtn High School in Jackson County, NC. Bids may be mailed to the address above, for receipt prior to bid date and time. Mailed bids must be to the attention of “Jake Buchanon”. It is the contractor’s responsibility to ensure plans have arrived prior to scheduled bid opening. All submissions MUST BE SEALED. *A formal bid opening will held, so attendance by bidders is available but not required. A bid tabulation will be issued summarizing the bids* Complete plans and contract documents will be available from the office of Reece, Noland & McElrath, Inc., Engineers, 390 Main St., Canton, North Carolina on April 22, 2026. Email requests to Scott Denton: sdenton@RNM-engineers.com

The Scope of Work is :

1. Furnish and Install LED Sports Lighting Fixture retrofit to the existing sports lighting poles. Light Levels are to be 50 Maintained Foot-Candles across the field to meet the North Carolina High School Lighting Regulations and IES-RP6 Sports Lighting. Contractor to supply and install (4) new 2 light crossarms and 650-Watt fixtures on each pole to light track areas.
2. Bidding Electrical Contractor must be properly licensed by the State of North Carolina to perform this work.
3. Contractor to remove and dispose of the existing sports lighting fixtures and crossarms.
4. Contractor to provide and install new galvanized steel mounting crossarms, fixture mounting hardware, all new wiring to the base of the poles and new LED Sports Lighting Fixtures and new fixture mounting hardware.
5. Contractor to aim all lights and test all lights per the manufacturer aiming diagrams.
6. The bidding electrical contractor will be required to obtain electrical permit.
7. It will be the responsibility of the contractor to verify all existing wiring at the fixture location is working properly.
8. All requirements of the National Electric Code, Article 250 for bonding and grounding shall be strictly adhered to.
9. Sports Lighting Warranty to include a 10-year manufacture warranty on the LED Sports Lighting fixture and two years labor by the bidding electrical contractor.
10. Contractor is solely responsible for all jobsite safety requirements.
11. Any damage to the grounds will be the responsibility of the contractor to repair back to the original grounds.
12. All taxes to be included in the contractor’s proposal.
13. Project to be completed by no later than July 17, 2026
14. The Bidding Electrical Contractor to provide a reference list with bid for eight LED sports lighting projects completed in the state of North Carolina over the last year similar to this project with name of project, location, and when completed.

15. All individuals must complete a background check prior to entering the school campus. The owner reserves the right to request a copy of the background check at any time.

All contractors are hereby notified that they must have proper license under the state laws governing their respective trades. Contractors are notified that provisions of Chapter 87, General Statutes of North Carolina, will be observed in receiving and awarding contracts.

A single contract will be accepted for Electrical. The Electrical contractor shall be the prime contractor.

Each proposal shall be accompanied by a cash deposit or a certified check, drawn on some bank or trust company insured by the Federal Deposit Insurance Corporation, of an amount equal to not less than 5 per cent of the proposal, or in lieu thereof a bidder may offer a bid bond of 5 per cent of the bid executed by a surety company licensed under the laws of North Carolina to execute such bonds, conditioned that the surety will upon demand forthwith make payment to the obligee upon said bond if the bidder fails to execute the contract in accordance with the bid bond. Said deposit shall be retained by the Owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten days after the award or to give satisfactory surety as required by law. Performance Bond and Payment Bond will be required for one hundred per cent (100%) of the contract price. Payment will be made monthly on the basis of completion of work, with retainage in accordance with NC General Statutes 143-134-1.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of 60 days.

The Owner reserves the right to reject any or all bids and to waive minor irregularities.

Any addenda to specifications issued during the time of bidding are to be considered covered in the proposal and in closing a contract they will become a part thereof. It shall be the bidder's responsibility to ascertain prior to bid time the addenda issued and to see that his bid includes any changes thereby required. Should the bidder find discrepancies in, or omission from, the drawings or documents or should he be in doubt as to their meaning, he shall at once notify the Designer in writing who will send written instructions in the form of addenda to all bidders. Notification should be not later than seven (7) days prior to the date set for receipt of bids. Neither the Owner nor the Designer will be responsible for any oral instructions. All addenda shall be acknowledged by the bidders on the Form of Proposal. Requests for substitutions of materials or equipment shall be submitted by prospective bidders in writing to the Designer not later than seven (7) days prior to the date set for receipt of bids. Approvals to bid equivalent products will be issued in addenda.

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TABLE OF CONTENTS

	<u>PAGES</u>
NOTICE TO BIDDERS	1
TABLE OF CONTENTS	1

INSTRUCTIONS TO BIDDERS AND GENERAL CONDITIONS OF THE CONTRACT	48
SUPPLEMENTARY GENERAL CONDITIONS	5
<u>TECHNICAL SPECIFICATIONS:</u>	
DIVISION 260000 ELECTRICAL	41
FORM OF PROPOSAL	2
FORM OF BID BOND	1
EXAMPLE CONTRACT FORM	3
PERFORMANCE BOND FORM	2
PAYMENT BOND FORM	2
HUB CERTIFIED MINORITY PARTICIPATION FORMS	6
ANTI-COLLUSION AFFIDAVIT	1
E-VERIFY AFFIDAVIT	1
IRAN DIVESTMENT ACT CERTIFICATION	1

INSTRUCTIONS TO BIDDERS
AND
GENERAL CONDITIONS OF THE CONTRACT

INSTRUCTIONS TO BIDDERS

For a proposal to be considered it must be in accordance with the following instructions:

1. PROPOSALS

Proposals must be made in strict accordance with the Form of Proposal provided herein, and all blank spaces for bids, alternates and unit prices shall be properly filled in. When requested alternates are not bid, the proposal may be considered incomplete. The bidder agrees that bid on Form of Proposal detached from specifications will be considered and will have the same force and effect as if attached thereto. Photocopied or faxed proposals will not be considered. Numbers shall be stated both in writing and in figures for the base bids and alternates. Any modifications to the Form of Proposal (including alternates and/or unit prices) will disqualify the bid and may cause the bid to be rejected.

The contractor shall fill in the Form of Proposal as follows:

a. If the documents are executed by a sole owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing them.

b. If the documents are executed by a partnership, that fact shall be evidenced by the word "Co-Partner" appearing after the name of the partner executing them.

c. If the documents are executed on the part of a corporation, they shall be executed by either the president or the vice president and attested by the secretary or assistant secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each signature page of the documents.

d. If the proposal is made by a joint venture, it shall be executed by each member of the joint venture in the above form for sole owner, partnership or corporation, whichever form is applicable.

e. All signatures shall be properly witnessed.

f. If the contractor's license is held by a person other than an owner, partner or officer of a firm, then the licensee shall also sign and be a party to the proposal. The title "Licensee" shall appear under his/her signature.

Proposals shall be addressed as indicated in the Advertisement for Bids and shall be delivered enclosed in an opaque sealed envelope, marked "Proposal" and bearing the title of the work, name of the bidder, and the bidder's license number, if required. Bidders shall clearly mark on the outside of the bid envelope which contract(s) they are bidding.

It shall be the specific responsibility of the bidder to deliver his bid to the proper official at the appointed place and prior to the announced time for the opening of bids. Later delivery of a bid for any reason, including delivery by the United States Postal Service, shall disqualify the bid.

Modifications of previously deposited bids will be acceptable only if delivered in writing or by telegram or fax to the place of the bid opening prior to the time for opening bids. Telegraphic and fax modifications must be confirmed in writing within 72 hours of the opening of bids.

Unit prices quoted in the proposal shall include overhead and profit and shall be the full compensation for the contractor's cost involved in the work. See General Conditions, Article 19c—1.

The Identification of Minority Business Participation and either Affidavit A or Affidavit B shall be submitted with the proposal, in the same envelope as the proposal.

The proposal shall be accompanied by the Bid Security, in the same envelope as the proposal, and as described elsewhere in the Instructions to Bidders.

2. EXAMINATION OF CONDITIONS

It is understood and mutually agreed that by submitting a bid the contractor acknowledges that he has carefully examined all documents pertaining to the work, the location, accessibility and general character of the site of the work and all existing buildings and structures within and adjacent to the site, and has satisfied himself as to the nature of the work, the condition of existing buildings and structures, the conformation of the ground, the character, quality and quantity of the material to be encountered, the character of the equipment, machinery, plant and any other facilities needed preliminary to and during prosecution of the work, the general and local conditions, the construction hazards, and all other matters, including, but not limited to, the labor situation which can in any way affect the work under the contract, and including all safety measures required by the Occupational Safety and Health Act of 1970 and all rules and regulations issued pursuant thereto. It is further mutually agreed that by submitting a proposal the contractor acknowledges that he has satisfied himself as to the feasibility and meaning of the plans, drawings, specifications and other contract documents for the construction of the work and that he accepts all the terms, conditions and stipulations contained therein; and that he is prepared to work in cooperation with other contractors performing work on the site.

Reference is made to contract documents for the identification of those surveys and investigation reports of subsurface or latent physical conditions at the site or otherwise affecting performance of the work which have been relied upon by the designer in preparing the documents. The owner will make copies of all such surveys and reports available to the bidder upon request.

Each bidder may, at his own expense, make such additional surveys and investigations as he may deem necessary to determine his bid price for the performance of the work. Any on—site investigation shall be done at the convenience of the owner. Any reasonable request for access to the site will be honored by the owner.

3. BULLETINS AND ADDENDA

Any addenda to drawings or specifications issued during the time of bidding are to be considered covered in the proposal and in closing a contract they will become a part thereof. It shall be the contractor's responsibility to ascertain prior to bid time the addenda issued and to see that his bid includes any changes thereby required.

Should the bidder find discrepancies in, or omission from, the drawings or documents or should he be in doubt as to their meaning, he shall at once notify the designer who will send written instructions in the form of addenda to all bidders. Notification should be no later than seven (7) days prior to the date set for receipt of bids. Neither the owner nor the designer will be responsible for any oral instructions.

All addenda shall be acknowledged by the bidder(s) on the Form of Proposal.

4. BID SECURITY

Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company insured by the Federal Deposit Insurance Corporation, or a bid bond in an amount equal to not less than five percent (5%) of the proposal, said deposit to be retained by the owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten (10) days after the award or to give satisfactory surety as required by law.

Bid bond shall be conditioned that the surety will, upon demand, forthwith make payment to the obligee upon said bond if the bidder fails to execute the contract. The owner may retain bid securities of any bidder(s) who may have a reasonable chance of award of contract for the full duration of time stated in the Notice to Bidders. Other bid securities may be released sooner, at the discretion of the owner. All bid securities (cash or certified checks) shall be returned to the bidders promptly after award of contracts, and no later than seven (7) days after expiration of the holding period stated in the Notice to Bidders. Standard Form of Bid Bond is included in these specifications.

5. RECEIPT OF BIDS

Bids shall be received in strict accordance with requirements of the General Statutes of North Carolina. Bid security shall be required as prescribed by statute. Prior to opening of any bids on the project, any bidder will be permitted to change or withdraw his bid.

6. OPENING OF BIDS

Upon opening, all bids shall be read aloud. Once any bid is opened, there shall not be any withdrawal of bids by any bidder and no bids may be returned by the designer to any bidder. After the bid opening, a bidder may request that his bid be withdrawn from consideration without forfeiture of his bid security in accordance with the provisions of the North Carolina General Statutes. After the opening of bids, no bid may be withdrawn, except under the provisions of General Statutes, for a period of thirty days unless otherwise specified. Should the successful bidder default and fail to execute a contract, the contract may be awarded to the next lowest and responsible bidder. The owner reserves the unqualified right to reject any and all bids. Reasons for rejection may include, but shall not be limited to, the following:

- a. If the Form of Proposal furnished to the bidder is not used or is altered.
- b. If the bidder fails to insert a price for all bid items, alternate and unit prices requested.
- c. If the bidder adds any provisions reserving the right to accept or reject any award.
- d. If there are unauthorized additions or conditional bids, or irregularities of any kind which tend to make the proposal incomplete, indefinite or ambiguous as to its meaning.

e. If the bidder fails to complete the proposal form where information is requested so the bid may be properly evaluated by the owner.

f. If the unit prices contained in the bid schedule are unacceptable to the owner.

g. If the bidder fails to comply with other instructions stated herein.

7. BID EVALUATION

The award of the contract will be made to the lowest responsible bidder as soon as practical. The owner may award on the basis of the base bid and any alternates the owner chooses.

Before awarding a contract, the owner may require the apparent low bidder to qualify himself to be a responsible bidder by furnishing any or all of the following data:

a. The latest financial statement showing assets and liabilities of the company or other information satisfactory to the owner.

b. A listing of completed projects of similar size.

c. Permanent name and address of place of business.

d. The number of regular employees of the organization and length of time the organization has been in business under present name.

e. The name and home office address of the surety proposed and the name and address of the responsible local claim agent.

f. The names of members of the firms who hold appropriate trade licenses, together with license numbers.

Failure or refusal to furnish any of the above information, if requested, shall constitute a basis for disqualification of any bidder.

In determining the lowest responsible bidder, the owner shall take into consideration the past performance of the bidder on construction contracts for the owner with particular concern given to completion times, quality of work, cooperation with other contractors, and cooperation with the designer and owner.

Should the owner adjudge that the apparent low bidder is not the lowest responsible bidder by virtue of the

above information, said apparent low bidder will be so notified and his bid security shall be returned to him.

8. PERFORMANCE BOND

The successful bidder, upon award of contract, shall furnish a performance bond in an amount equal to 100 percent of the contract price. See Article 35, General Conditions.

9. PAYMENT BOND

The successful bidder, upon award of contract, shall furnish a payment bond in an amount equal to 100 percent of the contract price. See Article 35, General Conditions.

10. PAYMENTS

Payments to the successful bidders (contractors) will be made on the basis of monthly estimates. See Article 31, General Conditions.

GENERAL CONDITIONS OF THE CONTRACT -- TABLE OF CONTENTS

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

ARTICLE 1 — DEFINITIONS

- a. The contract documents; consist of the Notice to Bidders; Instructions to Bidders; General Conditions of the Contract; special conditions if applicable; Supplementary General Conditions; the drawing and specifications, including all bulletins, addenda or other modifications of the drawings and specifications incorporated into the documents prior to their execution; the proposal; the contract; the performance bond; the payment bond; insurance certificates. All of these items together form the contract.
- b. The owner; is the agency named in the contract.
- c. The designer(s); are those referred to within this contract, or their authorized representatives. The designer(s), as referred to herein, shall mean architect and/or engineer. They will be referred to hereinafter as if each were of the singular number, masculine gender.
- d. The contractor;, as referred to hereinafter, shall be deemed to be either of the several contracting parties called the "Party of the First Part" in either of the several contracts in connection with the total project. Where, in special instances hereinafter, a particular contractor is intended, an adjective precedes the word "contractor," as "general," "heating," etc.
- e. A subcontractor; as the term is used herein, shall be understood to be one who has entered into a direct contract with a contractor, and includes one who furnishes materials worked to a special design in accordance with plans and specifications covered by the contract, but does not include one who only sells or furnishes materials not requiring work so described or detailed.
- f. Written notice; shall be defined as notice in writing delivered in person to the contractor, or to a partner of the firm in the case of a partnership, or to a member of the contracting organization, or to an officer of the organization in the case of a corporation, or sent to the last known business address of the contracting organization by registered mail.

g. Work, as used herein as a noun, is intended to include materials, labor and workmanship of the appropriate contractor.

h. The project; is the total construction work to be performed under the contract documents by the several contractors.

i. Project expediter, as used herein, shall be that contractor so designated in the contract documents. The project expediter shall have the following responsibilities:

1. Schedule the work of all contractors.
2. Maintain a project progress schedule for all contractors.
3. Give adequate notice to all contractors to ensure efficient continuity of all phases of the work.
4. Notify the designer of any changes in the project schedule.

j. Change order, as used herein, shall mean a written order to the contractor subsequent to the signing of the contract authorizing a change in the contract. The change order shall be signed by the contractor, designer, and the owner, in that order (Article 19).

k. Time of completion, as stated in the contract documents, is to be interpreted as consecutive calendar days measured from the date established in the written Notice to Proceed, or such other date as may be established herein (Article 23).

l. Liquidated damages, as stated in the contract documents, is an amount reasonably estimated in advance to cover the losses incurred by the owner by reason of failure of the contractor(s) to complete the work within the time specified.

m. Surety;, as used herein, shall mean the bonding company or corporate body which is bound with and for the contractor, and which engages to be responsible for the contractor and his acceptable performance of the work.

ARTICLE 2 — INTENT AND EXECUTION OF DOCUMENTS;

a. The drawings and specifications are complementary, one to the other. That which is shown on the drawings or called for in the specifications shall be as binding as if it were both called for and shown. The intent of the drawings and specifications is to establish the scope of all labor, materials, transportation, equipment, and any and all other things necessary to provide a complete job. In case of discrepancy or disagreement in the contract documents, the order of precedence shall be: Form of Contract, specifications, large-scale detail drawings, small-scale drawings.

b. The wording of the specifications shall be interpreted in accordance with common usage of the language except that words having a commonly used technical or trade meaning shall be so interpreted in preference to other meanings.

c. The contractor shall execute each copy of the proposal, contract, performance bond and payment bond as follows:

1. If the documents are executed by a sole owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing them.
2. If the documents are executed by a partnership, that fact shall be evidenced by the word "Co-Partner" appearing after the name of the partner executing them.
3. If the documents are executed on the part of a corporation, they shall be executed by either the president or the vice president and attested by the secretary or assistant secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each signature page of the documents.
4. If the documents are made by a joint venture, they shall be executed by each member of the joint venture in the above form for sole owner, partnership or corporation, whichever form is applicable to each particular member.
5. All signatures shall be properly witnessed.
6. If the contractor's license is held by a person other than an owner, partner or officer of a firm, then the licensee shall also sign and be a party to the contract. The title "Licensee" shall appear under his/her signature.

7. The bonds shall be executed by an attorney—in—fact. There shall be attached to each copy of the bond a certified copy of power of attorney properly executed and dated.

8. Each copy of the bonds shall be countersigned by an authorized individual agent of the bonding company licensed to do business in North Carolina. The title "Licensed Resident Agent" shall appear after the signature.

9. The seal of the bonding company shall be impressed on each signature page of the bonds.

10. The contractor's signature on the performance bond and the payment bond shall correspond with that on the contract.

ARTICLE 3 – CLARIFICATIONS AND DETAIL DRAWINGS;

a. In such cases where the nature of the work requires clarification by the designer, such clarification shall be furnished by the designer with reasonable promptness by means of written instructions or detail drawings, or both. Clarifications and drawings shall be consistent with the intent of contract documents, and shall become a part thereof.

b. The contractor(s) and the designer shall prepare, if deemed necessary, a schedule fixing dates upon which foreseeable clarifications will be required. The schedule will be subject to addition or change in accordance with progress of the work. The designer shall furnish drawings or clarifications in accordance with that schedule. The contractor shall not proceed with the work without such detail drawings and/or written clarifications.

ARTICLE 4 – COPIES OF DRAWINGS AND SPECIFICATIONS;

The designer shall furnish free of charge to the contractors copies of plans and specifications as follows:

a. General contractor — Up to twelve (12) sets of general contractor drawings and specifications, up to six (6) sets to include drawings and specifications of all other contracts.

b. Each other contractor — Up to six (6) sets of the appropriate drawings and specifications, up to three (3) sets to include drawings and specifications of all other contracts.

c. Additional sets shall be furnished at cost, including mailing, to the contractor upon request by the contractor. This cost shall be stated in the bidding documents.

d. For the purposes of a single-prime contract, the contractor shall receive up to 30 sets of drawings and specifications.

ARTICLE 5 — SHOP DRAWINGS, SUBMITTALS, SAMPLES, DATA;

a. The contractor shall submit to the designer all shop or setting drawings, descriptive data, samples, color charts, etc., required for the work. All shop drawings shall be reviewed by the contractor and shall bear the contractor's stamp of approval before being forwarded to the designer. Shop drawings shall be submitted in triplicate in time to avoid delay of the work or any part thereof. The designer shall review the shop drawings promptly, noting desired corrections, if any, and shall return two copies to the contractor within twenty (20) calendar days after receipt from the contractor. The contractor shall furnish corrected drawings in triplicate to the designer. Two copies of approved drawings shall be returned to the contractor.

b. Approval of shop drawings by the designer shall not be construed as relieving the contractor from responsibility for compliance with the design or terms of the contract documents nor from responsibility for errors of any sort in the shop drawings, unless such lack of compliance or errors first have been called in writing to the attention of the designer by the contractor.

ARTICLE 6 — WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE;

a. The contractor shall maintain, in readable condition at his job office, one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the designer or his authorized representative.

b. The contractor shall maintain at the job office, a day-to-day record of work-in-place that is at variance with the contract documents. Such record is to be provided in full to the designer upon completion and acceptance of the project.

ARTICLE 7 — OWNERSHIP OF DRAWINGS AND SPECIFICATIONS;

All drawings and specifications are instruments of service and remain the property of the Owner. The use of these instruments on work other than this contract without permission of the owner is prohibited. All copies of drawings and specifications other than contract copies shall be returned to the owner upon request after completion of the work.

ARTICLE 8 — MATERIALS, EQUIPMENT, EMPLOYEES;

a. The contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials,

tools, apparatus, lights, power, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of his work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.

b. All materials shall be new and of quality specified, except where reclaimed material is authorized herein and approved for use. Workmanship shall at all times be of a grade accepted as the best practice of the particular trade involved, and as stipulated in written standards of recognized organizations or institutes of the respective trades except as exceeded or qualified by the specifications.

c. Upon notice, the contractor shall furnish evidence as to quality of materials.

d. Products are generally specified by ASTM or other reference standard and/or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. When several products or manufacturers are specified as being equally acceptable, the Contractor has the option of using any product and manufacturer combination listed. However, the contractor shall be aware that the cited examples are used only to denote the quality standard of product desired and that they do not restrict bidders to a specific brand, make, manufacturer or specific name; that they are used only to set forth and convey to bidders the general style, type, character and quality of product desired; and that equivalent products will be acceptable. Substitution of materials, items or equipment of equal or equivalent design shall be submitted to the architect or engineer for approval or disapproval; such approval or disapproval shall be made by the architect or engineer prior to the opening of bids.

e. Each contractor shall obtain written approval from the designer for the use of substitute products, materials or equipment claimed as equal to those specified. Such approvals must be obtained as soon after contract awards as possible and before any materials are ordered. Applications for approvals shall be made by the contractor and not

by subcontractors or material suppliers. The contractor shall submit within twenty (20) days following award of contract a complete list of materials proposed for the job. When this list is approved, no further substitutions will be permitted except in unusual or extenuating circumstances. If no list is submitted, the contractor shall supply materials specified.

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

g. If at any time during the construction and completion of the work covered by these contract documents, the conduct of any workman of the various crafts be adjudged a nuisance to the owner or designer, or if any workman be considered detrimental to the work, the contractor shall order such parties removed immediately from grounds.

ARTICLE 9 – ROYALTIES, LICENSES AND PATENTS;

It is the intention of the contract documents that the work covered herein will not constitute in any way infringement of any patent whatsoever unless the fact of such patent is clearly evidenced herein. The contractor shall protect and save harmless the owner against suit on account of alleged or actual infringement. The contractor shall pay all royalties and/or license fees required on account of patented articles or processes, whether the patent rights are evidenced hereinafter.

ARTICLE 10 – PERMITS, INSPECTIONS, FEES, REGULATIONS;

a. The contractor shall give all notices and comply with all laws, ordinances, codes, rules and regulations bearing on the conduct of the work under this contract. If the contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the designer in writing. See Instructions to Bidders, Paragraph 3, Bulletins and Addenda. Any necessary changes required after contract award shall be made by change order in accordance with Article 19. If the contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules and regulations, and without such notice to the designer, he shall bear all cost arising therefrom. Additional requirements implemented after bidding will be subject to equitable negotiations.

b. All work under this contract shall conform to the North Carolina State Building Code and other state, local and national codes as are applicable. The cost of all required inspections and permits shall be the responsibility of the contractor.

c. Project is subject to county and municipal building codes and inspection by local authorities. These

permits and inspections shall be paid by the contractor.

ARTICLE 11 — PROTECTION OF WORK, PROPERTY AND THE PUBLIC;

a. The contractors shall be jointly responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. They shall be responsible for any damage to the owner's property, or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. They shall be responsible for and pay for any claims against the owner. All contractors shall have access to the project at all times.

b. The contractor shall provide cover and protect all portions of the structure when the work is not in progress, provide and set all temporary roofs, covers for doorways, sash and windows, and all other materials necessary to protect all the work on the building, whether set by him, or any of the subcontractors. Any work damaged through the lack of proper protection or from any other cause, shall be repaired or replaced without extra cost to the owner.

c. No fires of any kind will be allowed inside or around the operations during the course of construction without special permission from the designer.

d. The contractor shall protect all trees and shrubs designated to remain in the vicinity of the operations by building substantial boxes around same. He shall barricade all walks, roads, etc., as directed by the designer to keep the public away from the construction. All trenches, excavations or other hazards in the vicinity of the work shall be well barricaded and properly lighted at night.

e. The contractor shall provide all necessary safety measures for the protection of all persons on the job, including the requirements of the A.G.C. Accident Prevention Manual in Construction, as amended, and shall fully comply with all state laws or regulations and North Carolina State Building Code requirements to prevent accident or injury to persons on or about the location of the work. He shall clearly mark or post signs warning of hazards existing, and shall barricade excavations, elevator shafts, stairwells and similar hazards. He shall protect against damage or injury resulting from falling materials and he shall maintain all protective devices and signs throughout

the progress of the work.

f. The contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974, Federal Register), and revisions thereto as adopted by General Statutes of North Carolina 95–126 through 155.

g. The contractor shall designate a responsible member of his organization as safety inspector, whose duties shall include accident prevention on the work project. The name of the safety inspector shall be made known to the designer at the time the work is started.

h. In the event of emergency affecting the safety of life, the protection of work, or the safety of adjoining properties, the contractor is hereby authorized to act at his own discretion, without further authorization from anyone, to prevent such threatened injury or damage. Any compensation claimed by the contractor on account of such action shall be determined as provided for under Article 19(c).

ARTICLE 12 – SEDIMENTATION POLLUTION CONTROL ACT OF 1973;

a. Any land–disturbing activity performed by the contractor(s) in connection with the project shall comply with all erosion control measures set forth in the contract documents and any additional measures which may be required in order to ensure that the project is in full compliance with the Sedimentation Pollution Control Act of 1973, as implemented by Title 15, North Carolina Administrative Code, Chapter 4, Sedimentation Control, Subchapters 4A, 4B and 4C, as amended (15 N.C.A.C. 4A, 4B and 4C).

b. Upon receipt of notice that a land–disturbing activity is in violation of said act, the contractor(s) shall be responsible for ensuring that all steps or actions necessary to bring the project in compliance with said act are promptly taken.

c. The contractor(s) shall be responsible for defending any legal actions instituted pursuant to N.C.G.S. 113A-64 against any party or persons described in this article.

d. To the fullest extent permitted by law, the contractor(s) shall indemnify and hold harmless the owner, the designer and the agents, consultants and employees of the owner and designer, from and against all claims, damages, civil penalties, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from the performance of work or failure of performance of work, provided that any such claim, damage, civil penalty, loss or expense is attributable to a violation of the Sedimentation Pollution Control Act. Such obligation shall not be

construed to negate, abridge or otherwise reduced any other right or obligation of indemnity which would otherwise exist as to any party or persons described in this article.

ARTICLE 13 – INSPECTION OF THE WORK;

a. It is a condition of this contract that the work shall be subject to inspection during normal working hours by the designer, designated official representatives of the owner, and those persons required by state law to test special work for official approval. The contractor shall therefore provide safe access to the work at all times for such inspections.

b. All instructions to the contractor will be made only by or through the designer or his designated project representative. Observations made by official representatives of the owner shall be conveyed to the designer for review and coordination prior to issuance to the contractor.

c. Where special inspection or testing is required by virtue of any state laws, instructions of the designer, specifications or codes, the contractor shall give adequate notice to the designer of the time set for such inspection or test, if the inspection or test will be conducted by a party other than the designer. Such special tests or inspections will be made in the presence of the designer, or his authorized representative, and it shall be the contractor's responsibility to serve ample notice of such tests.

d. All laboratory tests shall be paid by the owner unless provided otherwise in the contract documents except the general contractor shall pay for laboratory tests to establish design mix for concrete, and for additional tests to prove compliance with contract documents where materials have tested deficient except when the testing laboratory did not follow the appropriate ASTM testing procedures.

e. Should any work be covered up or concealed prior to inspection and approval by the designer, such work shall be uncovered or exposed for inspection, if so requested by the designer in writing. Inspection of the work will be made promptly upon notice from the contractor. All cost involved in uncovering, repairing, replacing, recovering

and restoring to design condition, the work that has been covered or concealed will be paid by the contractor involved.

f. If any other portion of the work has been covered which the designer has not specifically requested to observe prior to being covered, the designer may request to see such work and it shall be uncovered by the contractor. If such work be found in accordance with the contract documents, the cost of uncovering and replacement shall, by appropriate change order, be charged to the owner. If such work be found not in accordance with the contract documents, the contractor shall pay such costs unless it be found that this condition was caused by the owner or a separate contractor as provided in Article 15, in which event the owner or the separate contractor shall be responsible for the payment of such costs.

ARTICLE 14 – CONSTRUCTION SUPERVISION;

a. Throughout the progress of the work, each contractor shall keep on the job a competent superintendent or supervisory staff satisfactory to the designer. The superintendent shall not be changed without the consent of the designer unless said superintendent ceases to be employed by the contractor or ceases to be competent. The superintendent shall have authority to act on behalf of the contractor, and instructions, directions or notices given to him shall be as binding as if given to the contractor. However, important directions, instructions and notices will be confirmed in writing to the contractor as will all such items if requested by the contractor.

b. The contractor shall examine and study the drawings and specifications and fully understand the project design, and shall provide constant and efficient supervision to the work. Should he discover any discrepancies of any sort in the drawings or specifications, he shall report them to the designer without delay. He will not be held responsible for discrepancies in the drawings and/or specifications, but shall be held responsible to report them should they become known to him.

c. All contractors shall be required to cooperate and consult with each other during the construction of this project. Each contractor shall lay out and execute his work so as to cause the least delay to other contractors. Each contractor shall be responsible for any damage to other contractor's work, and each contractor shall be financially

responsible to the another contractors for undue delay caused by him to other contractors on the project.

d. The contractor is required to attend monthly job site progress conferences as called by the designer. The contractor shall be represented at these job progress conferences by both home office and project personnel. These representatives shall have authority to act on behalf of the contractor. These meetings shall be open to subcontractors, material suppliers and any others who can contribute toward maintaining required job progress. It shall be the principal purpose of these meetings, or conferences, to effect coordination, cooperation and assistance in every practical way toward the end of maintaining progress of the project on schedule and to complete the project within the specified contract time. Each contractor shall be prepared to assess progress of the work as required in his particular contract and to recommend remedial measures for correction of progress as may be appropriate. The designer or his authorized representative shall be the coordinator of the conferences and shall preside as chairman.

e. The contractor(s) shall, if required by the Supplementary General Conditions, employ a registered engineer or registered land surveyor to lay out the work and to establish a bench mark nearby in a location where same will not be disturbed and where direct instruments sights may be taken.

f. The designer shall designate a project expediter on projects involving two or more prime contracts. The project expediter shall be designated in the Supplementary General Conditions.

g. It shall be the responsibility of the project expediter to cooperate with and obtain from the several contractors on the job their respective schedules and to integrate them into a project progress schedule that will show graphically, by a detailed bar chart, CPM or other acceptable and approved methods, the projected progress of the job from start to finish and within the allotted time frame. All contractors shall review the proposed progress schedule and approve same in writing to the designer and the project expediter.

h. The progress schedule shall be presented to the designer no later than thirty (30) days after written notice to proceed. No application for payment will be processed until this schedule is received.

- i. The schedule will be distributed to all contractors and displayed at the job site.
- j. The several contractors shall be responsible for their schedule and must notify the project expediter of any changes or adjustments to their schedule. The project expediter shall maintain the progress schedule, making monthly adjustments, updates, corrections, etc., that are necessary, keeping all contractors and the designer fully informed. Failure to provide an updated schedule may be grounds for withholding reduction of retainage as set forth in Article 31.
- k. The project expediter shall notify each contractor of such events or time frames that are critical to the progress of the job. Such notice shall be timely and reasonable. Should the progress be delayed due to the work of any of the several contractors, it shall be the duty of the project expediter to immediately notify the contractor(s) responsible for such delay, the designer, the State Construction Office and other prime contractors. The designer shall notify the bonding company that the progress is not being maintained and shall make a recommendation to the owner regarding further action.
- l. Designation as project expediter entails an additional project control responsibility and does not alter in any way the responsibility of the contractor so designated, nor the responsibility of the other contractors involved in the project.

ARTICLE 15 - SEPARATE CONTRACTS AND CONTRACTOR RELATIONSHIPS;

- a. Chapter 143, Article 8, General Statutes of North Carolina, requires separate contracts to be awarded for the general construction, heating and ventilating and air conditioning, plumbing, and electrical installations. The owner reserves the right to prepare separate specifications, receive separate bids, and award separate contracts for such other major items of work as may be in the best interest of the owner. Chapter 143, Article 8, was amended June 28, 1989, to allow public contracts to be bid in the alternative as multi-prime or single-prime contracts.
- b. All contractors shall cooperate with each other in the execution of their work, and shall plan their work in such manner as to avoid conflicting schedules or delay of the work. See Article 14, Construction Supervision.
- c. If any part of contractor's work depends upon the work of another contractor, defects which may affect that work shall be reported to the designer in order that prompt inspection may be made and the defects corrected.

Commencement of work by a contractor where such condition exists will constitute acceptance of the other contractor's work as being satisfactory in all respects to receive the work commenced, except as to defects which may later develop. The designer shall be the judge as to the quality of work and shall settle all disputes on the matter between contractors.

d. Any mechanical or electrical work such as sleeves, inserts, chases, etc., which is located in the work of the general contractor shall be built in by the general contractor. The respective mechanical and electrical contractors shall set all sleeves, inserts and other devices built into the structure in cooperation and under the supervision of the general contractor. The responsibility for the exact location of such items shall be that of the mechanical and/or electrical contractor.

e. Should a contractor cause damage to the work or property of another contractor, he shall be directly responsible, and upon notice, shall promptly settle the claim or otherwise resolve the dispute.

ARTICLE 16 — SUBCONTRACTS AND SUBCONTRACTORS;

a. Within fourteen (14) days after award of the contract, the contractor shall submit to the designer a list giving the names and addresses of subcontractors and equipment and material suppliers he proposes to use, together with the scope of their respective parts of the work. Should any subcontractor be disapproved by the designer, the designer shall submit his reasons for disapproval in writing to the owner for its consideration with a copy to the contractor. If the owner concurs with the designer's recommendation, the contractor shall submit a substitute for approval. The designer shall act promptly in the approval of subcontractors, and when approval of the list is given, no changes of subcontractors will be permitted except for cause or reason considered justifiable by the designer.

b. The designer will furnish to any subcontractor, upon request, evidence regarding amounts of money paid to the contractor on account of the subcontractor's work.

c. The contractor is and remains fully responsible for his own acts or omissions as well as those of any subcontractor or of any employee of either. The contractor agrees that no contractual relationship exists between the

subcontractor and the owner in regard to the contract, and that the subcontractor acts on this work as an agent or employee of the contractor.

d. The owner reserves the right to limit the amount of portions of work to be subcontracted as hereinafter specified.

ARTICLE 17 – CONTRACTOR AND SUBCONTRACTOR RELATIONSHIPS;

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

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

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

c. The percentage of retainage on payments made by the prime contractor to the subcontractor shall not exceed the percentage of retainage on payments made by the owner to the prime contractor. Any percentage of retainage on payments made by the prime contractor to the subcontractor that exceeds the percentage of retainage on payments made by the owner to the prime contractor shall be subject to interest to be paid by the prime contractor to the subcontractor at the rate of one percent (1%) per month or fraction thereof.

d. Nothing in this section shall prevent the prime contractor at the time of application and certification to the owner from withholding application and certification to the owner for payment to the subcontractor for unsatisfactory job progress; defective construction not remedied; disputed work; third-party claims filed or reasonable evidence that claim will be filed; failure of subcontractor to make timely payments for labor, equipment and materials; damage to prime contractor or another subcontractor; reasonable evidence that subcontract cannot be completed for the unpaid balance of the subcontract sum; or a reasonable amount for retainage not to exceed the initial percentage retained by owner.

ARTICLE 18 — DESIGNER'S STATUS;

a. The designer shall provide general administration of the performance of construction contracts, including liaison and necessary inspection of the work to ensure compliance with plans and specifications. He is the agent of the owner only for the purpose of constructing this work and to the extent stipulated in the contract documents. He has authority to stop work or to order work removed, or to order corrections of faulty work where such action may be necessary to assure successful completion of the work.

b. The designer is the impartial interpreter of the contract documents, and, as such, he shall exercise his powers under the contract to enforce faithful performance by both the owner and the contractor, taking sides with neither.

c. Should the designer cease to be employed on the work for any reason whatsoever, then the owner shall employ a competent replacement who shall assume the status of the former designer.

d. The designer will make periodic inspections of the project at intervals appropriate to the stage of construction. He will inspect the progress, the quality and the quantity of the work.

e. The designer and the owner shall have access to the work whenever it is in preparation and progress during normal working hours. The contractor shall provide facilities for such access so the designer may perform his functions under the contract documents.

f. Based on the designer's inspections and evaluations of the project, the designer shall issue interpretations, directives and decisions as may be necessary to administer the project. His decisions relating to artistic effect and technical matters shall be final, provided such decisions are within the limitations of the contract.

ARTICLE 19 – CHANGES IN THE WORK;

a. The owner may have changes made in the work covered by the contract. These changes will not invalidate and will not relieve or release the contractor from any guarantee given by him pertinent to the contract provisions. These changes will not affect the validity of the guarantee bond and will not relieve the surety or sureties of said bond. All extra work shall be executed under conditions of the original contract.

b. Except in an emergency endangering life or property, NO CHANGE SHALL BE MADE BY THE CONTRACTOR EXCEPT UPON WRITTEN ORDER FROM THE DESIGNER, COUNTERSIGNED BY THE OWNER AUTHORIZING SUCH CHANGE. AND NO CLAIM FOR ADJUSTMENTS OF THE CONTRACT PRICE SHALL BE VALID UNLESS THIS PROCEDURE IS FOLLOWED.

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

1. Where the extra work involved is covered by unit prices quoted in the proposal, the value of the change shall be computed by application of unit prices based on quantities, estimated or actual as agreed of the items involved.

2. The contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the change order, and the change order shall stipulate the corresponding lump sum adjustment to the contract price.

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

e. Under Methods "c(2)" and Paragraph "d" above, the allowances for overhead and profit combined shall not exceed twenty percent (20%) of net cost except where the change involves a subcontractor, allowance shall not exceed fifteen percent (15%) for the subcontractor, and ten percent (10%) for the prime contractor. Under Method "c(1)", no additional allowances shall be made for overhead and profit. In the case of deductible change orders, under Method "c(2)" and Paragraph "d" above, the contractor shall include no less than ten percent (10%) profit, but no allowances for overhead.

f. The term "net cost" as used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein may include all items of material and labor, rental value of power tools and equipment, bond adjustments and sales tax. The allowance for labor burden which includes such items of cost as workmen's compensation insurance, unemployment insurance, special insurance, Social Security and old age benefit, and fringe benefits shall be actual costs not to exceed thirty-five percent (35%) of total labor cost. Overtime and extra pay for holidays and weekends may be a cost item only to the extent approved by the owner.

g. The following items shall be considered as overhead: insurance other than mentioned above, supervision, superintendents, timekeepers, clerks, expeditors, watchmen, small tools, incidental job burdens and general office expense, and all other items not included in "cost" as above defined.

h. Should concealed conditions be encountered in the performance of the work below grade, or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the contract

documents, the contract sum and time for completion may be equitably adjusted by change order upon claim by either party made within thirty (30) days after the condition has been identified. The cost of such change shall be arrived at by one of the foregoing methods.

ALL CHANGE ORDERS SHALL BE SUPPORTED BY A BREAKDOWN SHOWING METHOD OF ARRIVING AT NET COST AS DEFINED ABOVE.

I. In all change orders, normal procedure will be for the designer to obtain quotations and supporting data, and verify correctness. The designer shall prepare the change order, secure the contractor's signature, certify the change order by his signature, and forward the change order and all supporting data to the owner for the owner's signature. Upon approval by the Owner, one copy remains with the Owner, and the remaining copies are sent to the designer for distribution to the contractor(s) and the surety. In case of emergency or extenuating circumstances, approval of changes may be obtained verbally by telephone or field orders approved by all parties, then shall be substantiated in writing as outlined under normal procedure.

j. At the time of signing a change order, the contractor shall be required to certify as follows:

"I certify that my bonding company will be notified forthwith that my contract has been changed by the amount of this change order, and that a copy of the approved change order will be mailed upon receipt by me to my surety."

k. A change order, when issued, shall be full compensation, or credit, for the extra work included, omitted or substituted. It shall show on its face the adjustment in time for completion of the project as a result of the change in the work.

l. If, during the progress of the work, the owner requests a change order and the contractor's terms are unacceptable, the owner without prejudice, may perform or have performed that portion of the work requested in the change order.

ARTICLE 20 — CLAIMS FOR EXTRA COST;

a. Should the contractor consider that as a result of any instructions given in any form by the designer, he is entitled to extra cost above that stated in the contract, he shall give written notice thereof to the designer within seven (7) days without delay, and shall not proceed with the work affected until further advised, except in emergency involving the safety of life or property, which condition is covered in Article 19(d) and Article 11(h). No claims for extra compensation will be considered unless the claim is so made. The designer shall render a written decision within seven (7) days of receipt of claim.

b. THE CONTRACTOR SHALL NOT ACT ON INSTRUCTIONS RECEIVED BY HIM FROM PERSONS OTHER THAN THE DESIGNER, AND ANY CLAIMS FOR EXTRA COMPENSATION OR EXTENSION OF TIME ON ACCOUNT OF SUCH INSTRUCTION WILL NOT BE HONORED. The designer will not be responsible for misunderstandings claimed by the contractor of verbal instructions which have not been confirmed in writing, and in no case shall instructions be interpreted as permitting a departure from the contract documents unless such instruction is confirmed in writing and supported by a properly authorized change order.

c. **Resolution of Claims and Disputes**

The Designer will review Claims and take one or more of the following preliminary actions within ten 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.

If a Claim has been resolved, the Designer will prepare or obtain appropriate documentation.

If a Claim has not been resolved, the party marking the Claim shall, within ten 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 or (3) notify the Designer that the initial Claim stands.

If a Claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Designer, the Designer will notify the parties in writing that the Designer=s decision will be made within seven days, which decision shall be final and binding on the parties but subject to arbitration. Upon expiration of such period, the Designer will render to the parties the Designer=s written decision relative to the Claim, including any change in the Contract Sum or Contract Time or both. If there is a surety and there appears to be a possibility of a Contractor=s default, the Designer may, but is not obligated to, notify the surety and request the surety=s assistance in resolving the controversy.

d. **Arbitration**

1. Controversies and Claims Subject to Arbitration. Any controversy or Claim arising out of or related to the Contract, or the breach thereof, shall be settled by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgement upon the award rendered by the arbitrator or arbitrators may be entered in any court having jurisdiction thereof. Such controversies or Claims upon which the Designer has given notice and rendered a decision as provided in Subparagraph C.4 shall be subject to arbitration upon written demand of either party. Arbitration may be commenced when 45 days have passed after a Claim has been referred to the Designer and no decision has been rendered.

2. Rules and Notices for Arbitration. Claims between the Owner and Contractor not resolved under Paragraph C.4 shall, if subject to arbitration under Subparagraph D.1, be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect, unless the parties mutually agree otherwise. Notice of demand for arbitration shall be filed in writing with the other party to the Agreement between the Owner and Contractor and with the American Arbitration Association, and a copy shall be filed with the Designer.

3. Contract Performance During Arbitration. During arbitration proceedings, the Owner and Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

4. When Arbitration May Be Demanded. Demand for arbitration of any Claim may not be made until the earlier of (1) the date on which the Designer has rendered a final written decision on the Claim, (2) the tenth day after the parties have presented evidence to the Designer or have been given reasonable opportunity to do so, if the Designer has not rendered a final written decision by the date.

4.1 When a written decision of the Designer states that (1) the decision is final but subject to arbitration and (2) a demand for arbitration of a Claim covered by such decision must be made within 30 days after the date on which the party making the demand receives the final written decision, then failure to demand arbitration within said 30 days= period shall result in the Designer=s decision becoming final and binding upon the Owner and Contractor. If the Designer renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence, but shall not supersede arbitration proceedings unless the decision is acceptable to all parties concerned.

4.2 A demand for arbitration shall be made within the time limits specified above as applicable, and in other cases within a reasonable time after the Claim has arisen, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations.

5. Limitation on Consolidation or Joinder. No arbitration arising out of or relating to the Contract documents shall include, by consolidation or joinder or in any other manner, the Designer, the Designer=s employees or consultants, except by written consent containing specific reference to the Agreement and signed by the Designer, Owner, CONTRACTOR and any other person or entity sought to be joined. No arbitration shall include, by consolidation or joinder or in any other manner, parties other than the Owner, CONTRACTOR, a separate contractor and other persons substantially involved in a common question of fact or law whose presence is required if complete relief is to be accorded in arbitration. No person or entity other than the Owner, CONTRACTOR or a separate contractor shall be included as an original third party or additional third party to an arbitration whose interest or responsibility is insubstantial. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a dispute not described therein or with a person or entity not named or described therein. The foregoing agreement

to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

6. **Claims and Timely Assertion of Claims.** A party who files a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded. When a party fails to include a Claim through oversight, inadvertence or excusable neglect, or when a Claim has matured or been acquired subsequently, the arbitrator or arbitrators may permit amendment.

7. **Judgment on Final Award.** The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

ARTICLE 21 – MINOR CHANGES IN THE WORK;

The designer will have the authority to order minor changes in the work not involving an adjustment in the contract sum or time for completion, and not inconsistent with the intent of the contract documents. Such changes shall be effected by written order, and shall be binding on the owner and the contractor.

ARTICLE 22 – UNCORRECTED FAULTY WORK;

Should the correction of faulty or damaged work be considered inadvisable or inexpedient by the owner and the designer, the owner shall be reimbursed by the contractor. A change order will be issued to reflect a reduction in the contract sum.

ARTICLE 23 – TIME OF COMPLETION, DELAYS, EXTENSION OF TIME;

a. The time to be allowed for construction is stated in the Supplementary General Conditions and in the Form of Proposal. The project expediter, Article 1(I) and Article 14, upon notice of award of contract, shall confer with other contractors, prepare a construction schedule based on the allowed time, and submit such a schedule to the other contractors for approval and coordination with a copy to the designer for comment. When the schedule has been approved by all contractors, the project expediter shall distribute copies to all contractors, the designer and the owner. All contractors shall maintain progress in accordance with the schedule and with terms of the construction contract. The progress schedule shall be revised as required by the project expediter in cooperation with other contractors and the designer. See Article 14.

b. The contractors shall commence work to be performed under this agreement on a date to be specified in a written order from the designer and shall fully complete all work hereunder within the number of consecutive calendar days stated. For each day in excess of the above number of days, the contractor(s) shall pay the owner the sum stated as liquidated damages reasonably estimated in advance to cover the losses to be incurred by the owner by

reason of failure of said contractor(s) to complete the work within the time specified, such time being in the essence of this contract and a material consideration thereof.

c. The designer shall be the judge as to the division of responsibility between the contractor(s), based on the construction schedule, weekly reports and job records, and shall apportion the amount of liquidated damages to be paid by each of them, according to delay caused by any or all of them.

d. If the contractor is delayed at any time in the progress of his work by any act or negligence of the owner or the designer, or by any employee of either; by any separate contractor employed by the owner; by changes ordered in the work; by labor disputes at the project site; by abnormal weather conditions not reasonably anticipated for the locality where the work is performed; by unavoidable casualties; by any causes beyond the contractor's control; or by any other causes which the designer and owner determine may justify the delay, then the contract time may be extended by change order for the time which the designer and owner may determine is reasonable.

Time extensions will not be granted for rain, wind, snow or other natural phenomena of normal intensity for the locality where work is performed. For purpose of determining extent of delay attributable to unusual weather phenomena, a determination shall be made by comparing the weather for the contract period involved with the average of the preceding five (5) year climatic range during the same time interval based on the National Oceanic and Atmospheric Administration National Weather Service statistics for the locality where work is performed and on daily weather logs kept on the job site by the contractor reflecting the effect of the weather on progress of the work and initialed by the designer's representative. Time extensions for weather delays do not entitle the contractor to "extended overhead" recovery.

e. Request for extension of time shall be made in writing within twenty (20) days following cause of delay. In case of continuing cause for delay, only one claim is necessary.

f. The contractor shall notify his surety in writing of extension of time granted.

g. No claim shall be allowed on account of failure of the designer to furnish drawings or instructions until two (2) weeks after demand for such drawings and/or instructions. See Article 3.

ARTICLE 24 – PARTIAL UTILIZATION: BENEFICIAL OCCUPANCY;

a. The owner may desire to occupy all or a portion of the project when the work is substantially complete.

b. Prior to the final payment, the owner may request the contractor(s) in writing, through the designer if applicable, to permit him to use a specified part of the project which he believes he may use without significant interference with construction of the other parts of the project. If the contractor(s) agree, the designer will schedule a beneficial occupancy inspection, after which the designer may issue a certificate of substantial completion. The certificate shall include the following documentation:

1. Date of substantial completion.
2. A tentative list of items to be completed or corrected before final payment.
3. Establishing responsibility between contractor and owner for maintenance, heat, utilities and insurance.
4. Establishing the date for guarantees and warranties under terms of the contract.
5. Consent of surety.
6. Endorsement from insurance company permitting occupancy.

c. The owner shall have the right to exclude the contractor from any part of the project which the designer has so certified to be substantially complete, but the owner will allow the contractor reasonable access to complete or correct work to bring it into compliance with the contract.

d. Occupancy by the owner under this article will in no way relieve the contractor from his contractual requirement to complete the project within the specified time. The contractor will not be relieved of liquidated damages because of beneficial occupancy. The designer may prorate liquidated damages based on the percentage of project occupied.

ARTICLE 25 – FINAL INSPECTION AND ACCEPTANCE;

a. The designer shall determine when the work is completed and ready for final inspection and shall schedule a final inspection at a time and date acceptable to the owner and contractor(s).

b. When contractors finish their work prior to completion by other contractors, these contracts shall be closed out through the final inspection, acceptance and final payment process on recommendation of the designer.

c. At the final inspection, the designer shall, if job conditions warrant, record a list of items that are found to be incomplete or not in accordance with the contract documents. At the conclusion of the final inspection, the designer shall make the following determinations:

1. That the project is completed and accepted.

2. That the project is accepted subject to the list of discrepancies (punch list). All punch list items must be completed within thirty (30) days of acceptance or the owner may invoke Article 28, Owner's Right to Do Work.

3. That the project is not complete and another date for a final inspection will be established.

d. The date of acceptance will establish the following:

1. The beginning of guarantees and warranties period.

2. The date on which the contractor's insurance coverage for public liability, property damage and builder's risk may be terminated.

3. That no liquidated damages (if applicable) shall be assessed after this date.

4. The termination date of utility cost to the contractor.

ARTICLE 26 – CORRECTION OF WORK BEFORE FINAL PAYMENT;

a. Any work, materials, fabricated items or other parts of the work which have been condemned or declared not in accordance with the contract by the designer shall be promptly removed from the work site by the contractor,

and shall be immediately replaced by new work in accordance with the contract at no additional cost to the owner.

Work or property of other contractors or the owner, damaged or destroyed by virtue of such faulty work, shall be made good at the expense of the contractor whose work is faulty.

b. Correction of condemned work described above shall commence within twenty-four (24) hours after receipt of notice from the designer, and shall make satisfactory progress until completed.

c. Should the contractor fail to proceed with the required corrections, then the owner may complete the work in accordance with the provisions of Article 28.

ARTICLE 27 — CORRECTION OF WORK AFTER FINAL PAYMENT;

See Article 35, Performance Bond and Payment Bond, and Article 42, Guarantee. Neither the final certificate, final payment, occupancy of the premises by the owner, nor any provision of the contract, nor any other act or instrument of the owner, nor the designer, shall relieve the contractor from responsibility for negligence, or faulty material or workmanship, or failure to comply with the drawings and specifications. He shall correct or make good any defects due thereto and repair any damage resulting therefrom which may appear during the guarantee period following final acceptance of the work except as stated otherwise under Article 42, Guarantee. The owner will report any defects as they may appear to the contractor and establish a time limit for completion of corrections by the contractor. The owner will be the judge as to the responsibility for correction of defects.

ARTICLE 28 — OWNER'S RIGHT TO DO WORK;

If, during the progress of the work or during the period of guarantee, the contractor fails to prosecute the work properly or to perform any provision of the contract, the owner, after fifteen (15) days' written notice sent by certified mail, return receipt requested, to the contractor from the designer, may perform or have performed that portion of the work. The cost of the work may be deducted from any amounts due or to become due to the contractor, such action and cost of same having been first approved by the designer. Should the cost of such action of the owner exceed the amount due or to become due the contractor, then the contractor or his surety, or both, shall be liable for and shall pay to the owner the amount of said excess.

ARTICLE 29 — ANNULMENT OF CONTRACT;

If the contractor fails to begin the work under the contract within the time specified, or the progress of the work is not maintained on schedule, or the work is not completed within the time above specified, or fails to perform the work with sufficient workmen and equipment or with sufficient materials to ensure the prompt completion of said work, or shall perform the work unsuitably or shall discontinue the prosecution of the work, or if the contractor shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of forty-eight (48) hours, or shall make an assignment for the benefit of creditors, or for any other cause whatsoever shall not carry on the work in an acceptable manner, the owner may give notice in writing, sent by certified mail, return receipt requested, to the contractor and his surety of such delay, neglect or default, specifying the same, and if the contractor within a period of fifteen (15) days after such notice shall not proceed in accordance therewith, then the owner shall, declare this contract in default, and, thereupon, the surety shall promptly take over the work and complete the performance of this contract in the manner and within the time frame specified. In the event the surety shall fail to take over the work to be done under this contract within fifteen (15) days after being so notified and notify the owner in writing, sent by certified mail, return

receipt requested, that he is taking the same over and stating that he will diligently pursue and complete the same, the owner shall have full power and authority, without violating the contract, to take the prosecution of the work out of the hands of said contractor, to appropriate or use any or all contract materials and equipment on the grounds as may be suitable and acceptable and may enter into an agreement, either by public letting or negotiation, for the completion of said contract according to the terms and provisions thereof or use such other methods as in his opinion shall be required for the completion of said contract in an acceptable manner. All costs and charges incurred by the owner, together with the costs of completing the work under contract, shall be deducted from any monies due or which may become due said contractor and surety. In case the expense so incurred by the owner shall be less than the sum which would have been payable under the contract, if it had been completed by said contractor, then the said contractor and surety shall be entitled to receive the difference, but in case such expense shall exceed the sum which would have been payable under the contract, then the contractor and the surety shall be liable and shall pay to the owner the amount of said excess.

ARTICLE 30 — CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE THE CONTRACT;

- a. Should the work be stopped by order of a court having jurisdiction, or by order of any other public authority for a period of three months, due to cause beyond the fault or control of the contractor, or if the owner should fail or refuse to make payment on account of a certificate issued by the designer within thirty (30) days after receipt of same, then the contractor, after fifteen (15) days' written notice sent by certified mail, return receipt requested, to the owner and the designer, may suspend operations on the work or terminate the contract.

- b. The owner shall be liable to the contractor for the cost of all materials delivered and work performed on this contract plus 20 percent overhead and profit and shall make such payment. The designer shall be the judge as to the correctness of such payment.

ARTICLE 31 — REQUEST FOR PAYMENT;

- a. Not later than the fifth day of the month, the contractor shall submit to the designer a request for payment for work done during the previous month. The request shall be in the form agreed upon between the contractor and the designer, but shall show substantially the value of work done and materials delivered to the site during the period since the last payment, and shall sum up the financial status of the contract with the following information:
 1. Total of contract including change orders.
 2. Value of work completed to date.
 3. Less five percent (5%) retainage, provided however, that after fifty percent (50%) of the work has been satisfactorily completed on schedule, with approval of the owner and written consent of the surety,

further requirements for retainage will be waived only so long as work continues to be completed satisfactorily and on schedule.

4. Less previous payments.

5. Current amount due.

b. The contractor, upon request of the designer, shall substantiate the request with invoices of vouchers or payrolls or other evidence.

c. Prior to submitting the first request, the contractor shall prepare for the designer a schedule showing a breakdown of the contract price into values of the various parts of the work, so arranged as to facilitate payments to subcontractors in accordance with Article 17, Contractor and Subcontractor Relationships.

d. When payment is made on account of stored materials and equipment, such materials must be stored on the owner's property, and the requests for payments shall be accompanied by invoices or bills of sale or other evidence to establish the owner's title to such materials and equipment. Responsibility for such stored materials and equipment shall remain with the contractor regardless of ownership title. Such stored materials and equipment shall not be removed from the owner's property. Should the space for storage on-site be limited, the contractor, at his option, shall be permitted to store such materials and/or equipment in a suitable space off-site. Should the contractor desire to include any such materials or equipment in his application for payment, they must be stored in the name of the owner in a commercial warehouse approved by the designer and Owner and located as close to the site as possible. The warehouse selected must be approved by the contractor's bonding and insurance companies; the material to be paid for shall be assigned to the owner and shall be inspected by the designer. Upon approval by the designer of the storage facilities and materials and equipment, payment therefore will be certified. Responsibility for such stored materials and equipment shall remain with the contractor. Such stored materials and equipment shall not be moved except for transportation to the project site. Under certain conditions, the designer may approve storage of materials at the point of manufacture, which conditions shall be approved by the designer and the owner prior to approval for the storage and shall include an agreement by the storing party which unconditionally gives the Owner absolute right to possession of the materials at anytime. Bond, security and insurance protection shall

continue to be the responsibility of the contractor(s).

e. In the event of beneficial occupancy, retainage of funds due the contractor(s) may be reduced with the approval of the Owner to an equitable amount to cover the list of items to be completed or corrected. Retainage may not be reduced to less than two and one-half (2 2) times the estimated value of the work to be completed or corrected. Reduction of retainage must be with the consent and approval of the contractor's bonding company.

ARTICLE 32 – CERTIFICATES OF PAYMENT AND FINAL PAYMENT;

a. Within five (5) days from receipt of request for payment from the contractor, the designer shall issue and forward to the owner a certificate for payment. This certificate shall indicate the amount requested or as approved by the designer. If the certificate is not approved by the designer, he shall state in writing to the contractor and the owner his reasons for withholding payment.

b. No certificate issued or payment made shall constitute an acceptance of the work or any part thereof. The making and acceptance of final payment shall constitute a waiver of all claims by the owner except:

1. Claims arising from unsettled liens or claims against the contractor.
2. Faulty work or materials appearing after final payment.
3. Failure of the contractor to perform the work in accordance with drawings and specifications, such failure appearing after payment.
4. As conditioned in the performance bond and payment bond.

c. The making and acceptance of final payment shall constitute a waiver of all claims by the contractor except those claims previously made and remaining unsettled (Article 20(c)).

d. The designer will not authorize final payment until the work under contract has been certified by designer, and certificates of compliance issued (G.S. 133–1.1).

e. Final certificate of payment shall be accompanied by the following:

1. Warranties and guarantees required by the contract.

2. Release and waiver of claim for prime contractors.
3. Affidavit of contractors of payment to material suppliers and subcontractors. (See Article 36.)
4. Certificates of state agencies required by state law.
5. Certificate of compliance by designer.
6. Consent of surety to final payment.

ARTICLE 33 – PAYMENTS WITHHELD;

- a. The designer with the approval of the Owner may withhold payment for the following reasons:
 1. Faulty work not corrected.
 2. The unpaid balance on the contract is insufficient to complete the work in the judgment of the designer.
 3. To provide for sufficient contract balance to cover liquidated damages that will be assessed.
- b. The Owner may authorize the withholding of payment for the following reasons:
 1. Claims filed against the contractor or evidence that a claim will be filed.
 2. Evidence that subcontractors have not been paid.
- c. When grounds for withholding payments have been removed, payment will be released. Delay of payment due the contractor without cause will make owner liable for payment of interest to the contractor as provided in G.S. 143–134.1.

ARTICLE 34 – MINIMUM INSURANCE REQUIREMENTS;

The work under this contract shall not commence until the contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the owner. These certificates shall contain a provision that coverages afforded under the policies will not be canceled, reduced in amount or coverages eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the owner of such alteration or cancellation.

- a. **Worker's Compensation and Employer's Liability:** The contractor shall provide and maintain, during the life of the contract, worker's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of \$100,000.
- b. **Public Liability and Property Damage:** The contractor shall provide and maintain, during the life of the contract, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may

arise from operations under this contract, whether such operations be by the contractor or by any subcontractor, or by anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury*: \$500,000 per occurrence
Property Damage*: \$100,000 per occurrence / \$300,000 aggregate
*\$500,000: Combined single limit shall satisfy both conditions.

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

c. Property Insurance: The contractor shall purchase and maintain property insurance during the life of this contract, upon the entire work at the site to the full insurable value thereof. This insurance shall include the interests of the owner, the contractor, the subcontractors and subcontractors in the work and shall insure against the perils of fire, extended coverage, and vandalism and malicious mischief. If the owner is damaged by failure of the contractor to purchase or maintain such insurance, then the contractor shall bear all reasonable costs properly attributable thereto; the contractor shall effect and maintain similar property insurance on portions of the work stored off the site when request for payment per articles so includes such portions.

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

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

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

ARTICLE 35 – PERFORMANCE BOND AND PAYMENT BOND;

a. Each contractor shall furnish a performance bond and payment bond executed by a surety company authorized to do business in North Carolina. The bonds shall be in the full contract amount. Bonds shall be executed in the form bound with these specifications (Section 307 and Section 308).

b. All bonds shall be countersigned by an authorized agent of the bonding company who is licensed to do business in North Carolina.

ARTICLE 36 – CONTRACTOR'S AFFIDAVIT;

The final payment of retained amount due the contractor on account of the contract shall not become due until the contractor has furnished to the owner through the designer an affidavit signed, sworn and notarized to the effect that all payments for materials, services or subcontracted work in connection with his contract have been satisfied, and that no claims or liens exist against the contractor in connection with this contract. In the event that the contractor

cannot obtain similar affidavits from subcontractors to protect the contractor and the owner from possible liens or claims against the subcontractor, the contractor shall state in his affidavit that no claims or liens exist against any subcontractor to the best of his (the contractor's) knowledge, and if any appear afterward, the contractor shall save the owner harmless.

ARTICLE 37 — ASSIGNMENTS;

The contractor shall not assign any portion of this contract nor subcontract in its entirety. Except as may be required under terms of the performance bond or payment bond, no funds or sums of money due or become due the contractor under the contract may be assigned.

ARTICLE 38 — USE OF PREMISES;

a. The contractor(s) shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, permits or directions of the designer and shall not exceed those established limits in his operations.

b. The contractor(s) shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

c. The contractor(s) shall enforce the designer's instructions regarding signs, advertisements, fires and smoking.

ARTICLE 39 — CUTTING, PATCHING AND DIGGING;

a. The contractor shall do all cutting, fitting or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other contractors shown upon or reasonably implied by the drawings and specifications for the completed structure, as the designer may direct.

b. Any cost brought about by defective or ill-timed work shall be borne by the party responsible therefor.

c. No contractor shall endanger any work of another contractor by cutting, digging or other means. No contractor shall cut or alter the work of any other contractor without the consent of the designer and the affected contractor(s).

ARTICLE 40 — UTILITIES, STRUCTURES, SIGNS;

- a. The project expediter shall provide necessary and adequate facilities and pay all costs for water, electricity, gas, oil, sewer and other utility services which may be necessary and required for completion of the project according to the contract documents. Any permanent meters installed shall be listed in the project expediter's name until his work is fully accepted by the owner.
- b. Meters shall be relisted in the owner's name on the day following completion and acceptance of the project expediter's work, and the owner shall pay for services used after that date.
- c. The owner shall be reimbursed for all metered utility service charges paid by or attributed to the owner after the meter is relisted in the owner's name and prior to completion and acceptance of the work of all contractors. Reimbursement shall be made by the contractor whose work has not been completed and accepted. If the work of two or more contractors has not been completed and accepted, reimbursement to the owner shall be paid by the contractors involved on the basis of assessments by the designer.
- d. All contractors shall have the permanent building systems in sufficient readiness for furnishing temporary climatic control at the time a building is enclosed. The HVAC systems shall maintain climatic control throughout the enclosed portion of the building sufficient to allow completion of the interior finishes of the building. A building shall be considered enclosed when it has windows installed and when doorways and other openings have protection which will provide reasonable climatic control. The appropriate climatic condition shall be jointly determined by the contractor(s) and the designer. Use of the equipment in this manner shall in no way affect the warranty requirements of the contractor(s).
- e. The electrical contractor shall have the building's permanent power wiring distribution system in sufficient readiness to provide power as required by the HVAC contractor for temporary climatic control.
- f. The electrical contractor shall have the building's permanent lighting system ready at the time the general contractor begins interior painting and shall provide adequate lighting in those areas where interior painting and finishing is being performed.

g. Each prime contractor shall be responsible for his permanently fixed service facilities and systems in use during progress of the work. The following procedures shall be strictly adhered to:

1. Prior to acceptance of work by the owner, each contractor shall remove and replace any parts of the permanent building systems damaged through use during construction.

2. Temporary filters shall be installed in each of the heating and air conditioning units during construction. New filters shall be installed in each unit prior to the owner's acceptance of the work.

3. Extra effort shall be maintained to keep the building clean and under no circumstances shall air systems be operated if finishing operations are creating dust in excess of what would be considered normal if the building were occupied. The designer may require that return grilles in the habitable space also be covered with filter media. The intent is to present the duct system in a clean condition at final inspection.

4. It shall be understood that any warranty on equipment presented to the owner shall extend from the day of final acceptance by the owner. The cost of warranting the equipment during operation in the finishing stages of construction shall be borne by the contractor whose system is utilized.

5. The electrical contractor shall have all lamps in proper working condition at the time of final project acceptance.

h. The project expediter shall provide, if required and where directed, a shed for toilet facilities and shall furnish and install in this shed all water closets required for a complete and adequate sanitary arrangement. These facilities will be available to other contractors on the job and shall be kept in a neat and sanitary condition at all times. Chemical toilets are acceptable.

I. The project expediter shall, if required by the Supplementary General Conditions and where directed, erect a temporary field office, complete with lights, telephone, heat and air conditioning. A portion of this office shall be partitioned off, of sufficient size, for the use of a resident inspector, should the designer so direct.

j. The project expediter will erect one sign on the project if required. The sign shall be of sound construction, and shall be neatly lettered with black letters on white background. The sign shall bear the name of the project, and the names of prime contractors on the project, and the name of the designer and consultants. Directional signs may be erected on the owner's property subject to approval of the owner with respect to size, style and location of such directional signs. Such signs may bear the name of the contractor and a directional symbol. No other signs will be

permitted except by permission of the owner.

ARTICLE 41 — CLEANING UP;

The contractors shall keep the building and surrounding area reasonably free from rubbish at all times, and shall remove debris from the site from time to time or when directed to do so by the designer. Before final inspection and acceptance of the building, each contractor shall clean his portion of the work, including glass, hardware, fixtures, masonry, tile and marble (using no acid), clean and wax all floors as specified, and completely prepare the building for use by the owner, with no cleaning required by the owner.

ARTICLE 42 — GUARANTEE;

a. Where items of equipment or material carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material. The contractor shall replace such defective equipment or materials, without cost to the owner, within the manufacturer's warranty period.

b. The contractor shall unconditionally guarantee materials and workmanship against patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve (12) months following the final acceptance of the work and shall replace such defective materials or workmanship without cost to the owner.

c. Additionally, the owner may bring an action for latent defects caused by the negligence of the contractor which is hidden or not readily apparent to the owner at the time of final acceptance, in accordance with applicable law.

d. Roof guarantees are stipulated in the roofing specification.

ARTICLE 43 — CODES AND STANDARDS;

Wherever reference is given to codes, standard specifications or other data published by regulating agencies including, but not limited to, national electrical codes, North Carolina state building codes, federal specifications, ASTM specifications, various institute specifications, etc., it shall be understood that such reference is to the latest edition including addenda published prior to the date of the contract documents.

ARTICLE 44 — INDEMNIFICATION;

To the fullest extent permitted by law, the contractor shall indemnify and hold harmless the owner, the designer and the agents, consultants and employees of the owner and designer, from and against all claims, damages, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from the performance or failure of performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission of the contractor, the contractor's subcontractor, or the agents of either the contractor or the contractor's subcontractor. Such obligation shall not be construed to negate, abridge or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this article.

ARTICLE 45 — TAXES;

State Use and Sales Taxes shall be included in the Bid. The Contractor shall submit each month, with his payment request, a Sales Tax Report showing Sales Tax paid, as set forth herein. Sales tax report shall be itemized on a form showing name and address of supplier, invoice number, date, material description, gross amount, State Sales Tax, County Sales Tax, invoice total, and grand total. Sales Tax Reports shall be signed and notarized.

ARTICLE 46 — EQUAL OPPORTUNITY CLAUSE;

The non-discrimination clause contained in Section 202 (Federal) Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex or national origin, and the implementing rules and regulations prescribed by the secretary of Labor, are incorporated herein.

ARTICLE 47 — EMPLOYMENT OF THE HANDICAPPED;

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

ARTICLE 48 - ASBESTOS-CONTAINING MATERIALS (ACM);

The Owner has attempted to address all asbestos-containing materials that are to be disturbed in the project. However, there may be other asbestos-containing materials in the work areas that are not to be disturbed and do not create an exposure hazard. Contractors are reminded of the requirements of instructions under Instructions to Bidders and General Conditions of the Contract, titled Examination of Conditions. Statute 130A, Article 19, amended August 3, 1989, established the Asbestos Hazard Management Program that controls asbestos abatement in North Carolina.

SUPPLEMENTARY GENERAL CONDITIONS

ARTICLE 2 - INTENT AND EXECUTION OF DOCUMENTS:

Supplement:

All work shall conform to Contract Documents. No change there from shall be made without Contractor having first received permission from Engineer, in writing, to make such change. Where detailed information is lacking, Contractor, before proceeding with work, shall refer matter to Engineer who will furnish information with reasonable promptness.

If any errors or omissions appear in Contract Documents, Contractor shall, after discovering same, notify Engineer in writing of such error or omission.

Drawings for this project consist of: E001, E100, E101

ARTICLE 3 - CLARIFICATIONS AND DETAIL DRAWINGS:

Supplement:

If, in the Contractor's opinion, any work is indicated on Drawings, or is specified in such manner as will make it impossible to produce a first-class piece of work, or should discrepancies appear between Drawings and Specifications, he shall refer same to Engineer for interpretation before proceeding with work. If Contractor fails to make such reference, no excuse will thereafter be entertained for failure to carry out work in satisfactory manner.

Should a conflict occur in or between Drawings and Specifications, CONTRACTOR SHALL BE DEEMED TO HAVE ESTIMATED ON MORE EXPENSIVE WAY OF DOING WORK unless he shall have asked for and obtained a decision, in writing, from Engineer before submission of proposals as to which method or materials will be required.

ARTICLE 14 - CONSTRUCTION SUPERVISION:

Supplement:

Prior to and during the execution of the work, the Contractor shall check all drawings, specifications, and job conditions and shall immediately report any errors, discrepancies, conflicts and omissions found therein to the Engineer in writing and have the same explained or corrected by the Engineer before proceeding with the work. Any work done by the Contractor after these conditions have been discovered and before the Engineer has explained or made corrections shall be corrected at the Contractor's expense.

Contractor shall verify all dimensions as indicated on drawings. He shall report any errors or inconsistencies in writing above to the Engineer before commencing work and any necessary changes shall be adjusted as provided by Article 19 "Changes in the Work".

In the event that the Contractor does not verify all dimensions he shall bear the cost of any necessary changes resulting there from.

ARTICLE 15 - SEPARATE CONTRACTS AND CONTRACTOR RELATIONSHIPS:

Shall be as follows: Electrical (Single Prime),

All work, including any incidental cutting and patching, repairs to existing finishes as a result of Contractor's operations, and any other work necessary to the proper execution of this Contract shall be the responsibility of the

Prime Contractor.

ARTICLE 23 - TIME OF COMPLETION, DELAYS, EXTENSIONS OF TIME: Completion date to be July 17, 2026

Supplement:

The "Construction Schedule" shall be in graph form and show the date when every major operation is to begin and to be completed, the dollar value to be completed, the dollar value to be completed each month and the date when approved shop drawings will be needed.

"Construction Schedule" shall be brought up to date and submitted each month with the application for payment.

An additional copy of the "Construction Schedule" shall be provided the Engineer for forwarding to the Owner.

All work must be completed in accordance with the Project Schedule which is described in Article 60 of these Supplementary General Conditions.

ARTICLE 31 - REQUEST FOR PAYMENT:

Supplement: The Contractor shall submit to the Engineer for approval promptly after the award of the contract, a complete schedule of values of the various parts of the work, broken down to show labor and material values for each school. The various parts of the work shall be listed with their proportional value. This schedule shall be used for the basis for monthly payments.

The Contractor may submit to the Engineer an "Application and Certificate for Payment" on A.I.A. Form 702, each month if he wishes to be paid for work accomplished in the previous month. The Contractor shall attach to the Application any receipts or vouchers required to verify same.

The application, when approved by the Engineer, shall be certified within a reasonable time to the Owner for payment. No payment made to the Contractor by the Owner shall constitute acceptance of any work or materials not conforming to the Contract.

Revise paragraph a.3. as follows:

3. Less five percent (5%) retainage, provided however, that after fifty percent (50%) of the work has been satisfactorily completed on schedule, with approval of the Owner and written consent of the surety, retainage may be reduced to zero percent (0%) only so long as work continues to be completed satisfactorily and on schedule.

ARTICLE 39 - CUTTING, PATCHING, AND DIGGING:

Supplement:

It is the general intent of these drawings and specifications that patching of walls, floors, partitions, roofs, ceilings, or other materials necessary and required to affect the completion of work as required to install work by the contractor will be the responsibility of said contractor, except as otherwise specifically required by the accompanying drawings and specifications. The repair of all damages made by cutting shall include restoring those surfaces to their original state of finish. All such repairs shall be performed by personnel trained and proficient in the particular trades involved; i.e., plaster repairs by plasterers, masonry repairs by masons, tile repairs by tile setters, etc., who shall be approved in advance by the Engineer.

It is the intent of this specification that all areas requiring repairs shall be restored to a completely finished condition, acceptable to the Engineer and Owner, by this Contractor.

ARTICLE 40 - UTILITIES, STRUCTURES, SIGNS:

Utilities, including electric power and water for construction purposes will be provided by the Owner from existing facilities. The Contractor shall consult with the Owner as to the source of power.

Contractor **may not** utilize Owner designated toilet facilities within the building. Contractor to provide & maintain portable toilet facilities located on site outside building in a location designated by the Owner.

ARTICLE 50 - MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS:

All manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accord with manufacturer's specifications and directions, unless herein specified to the contrary.

ARTICLE 51 - PHYSICAL DATA:

The drawings have been prepared on the basis of surveys and inspections of the site and are intended to present an essentially accurate general indication of the physical conditions at the site. This, however, shall not relieve the Contractor of the necessity for familiarizing himself with the physical conditions at the site. Any discrepancies found in the drawings shall be reported to the Engineer.

The Contractors and subcontractors shall verify all levels, dimensions, angles, and conditions at the site before ordering any material or executing any work and shall be responsible for the correctness of his measurements. Any difference which may be found, shall be submitted to the Engineer for consideration and adjustment before proceeding with the work.

ARTICLE 52 - DESCRIPTION OF PROJECT:

This project consists of installing new cross arms and light fixtures on the existing sports lighting poles. Route new wiring from pole base up to fixtures. Provide individual control of each fixture to be controlled remotely.

ARTICLE 54 - TIME OF COMPLETION AND LIQUIDATED DAMAGES:

The Contractor shall commence work to be performed under this agreement on a date to be specified in a written order from the Engineer and shall fully complete all work hereunder in accordance with the schedule outlined in Supplementary General Conditions Article 60. See General Conditions of the Contract, Article 23, regarding Construction Schedule, Delays and Extension of Time.

It is anticipated that overtime work / late shift work, and possibly weekend work may be required in order to complete this project within the specified duration. Any costs associated with overtime/weekend work are considered within the scope of work of this contract. Work schedule shall be fully coordinated with and approved by the owner. Contractor shall follow all County policies regarding safety, security, and otherwise, when working while staff is not present. Contractor shall be responsible for all resulting loss / costs that may result (both their own, as well as, the owner's) as a result of not complying with policies and agreed to procedures.

ARTICLE 55 - WORK IN OCCUPIED AREAS:

Contractor shall properly protect all furnishings and finishes in the building and stored in designated areas of the building by the Owner.

Where work is required to be done in occupied areas of the existing building the Contractor shall consult with the Owner and arrange schedules mutually satisfactory to both parties for performing such work. Special consideration will be given to Owner's ability to schedule work in special areas or during times facilities are previously committed. The Owner may have the ability to relocate occupants of certain areas of the facility to facilitate work in

these areas for specific periods of time as long as given sufficient advance notice to make such arrangements. Other areas such as the Health Department clinical areas must remain in operation for all scheduled business hours. Thus, work in these areas must be accomplished on nights, weekends, and scheduled holidays. Work areas are to be thoroughly cleaned with furniture and equipment back in place for work prior to re-occupancy by the Owner. All costs associated with premium/overtime work are to be included in the Contract.

The Contractor shall take due precautions for protection of equipment and furnishings and shall expedite work to complete same in shortest possible time and minimum disruption of normal activities of Owner. Once installation is begun, it shall be completed without delay.

ARTICLE 56 - STORAGE:

Space for storage of materials and equipment will be provided and designated at the project site. The Contractor shall consult with the Owner who will designate specific areas mutually satisfactory to both parties for this purpose.

ARTICLE 57 - PARKING:

Space for parking of Contractor's cars and trucks will be allotted free of charge by the Owner at the site of the work. The Contractor shall confer with the Owner who will designate specific spaces, the location and number of which are mutually satisfactory to each.

ARTICLE 58 - INTERPRETATIONS:

When Engineer gives or makes interpretations, contractor should not assume that he is being given oral instructions to make changes. No changes will be made except by written change order duly signed by the Owner, the Engineer, and Contractor; and the Contractor should not assume approval until he receives his duly executed copy.

ARTICLE 59 - PROJECT EXPEDITER:

It shall be the responsibility of the Prime Contractor for the project to schedule the work of all sub-contractors to maintain a progress schedule for all sub-contractors for this project; and to notify the Engineer of any changes in the progress schedule. He shall be responsible for providing adequate notice to all sub-contractors to ensure efficient continuity of all phases of the project work.

Project will have only one prime contractor; thus the prime contractor will be designated the project expediter.

ARTICLE 60 – PROJECT SCHEDULE:

The Contractor will be required to execute this project while portions of the facilities remain occupied throughout the construction process.

The contract period is 180 days from the Notice to Proceed. Consideration to adjusting the project duration will be given due to adequately documented equipment delivery/supply chain issues. Work inside the facility must be coordinated with the Owner, and must be coordinated with activities scheduled for the facility.

ARTICLE 61 – RECYCLING:

Disposal of all material demolished from the premises, as well as all construction debris, is to be accomplished in complete accordance state law and local ordinances.

ARTICLE 62 - COMPLIANCE WITH JACKSON COUNTY NORTH CAROLINA POLICIES.

Contractor personnel will be required to comply with all County requirements at all times while on the campus including but not limited to prohibition of alcohol, illegal drugs, tobacco products, firearms, inappropriate attire, improper language, etc.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. General provisions.
 - 2. Scope.
 - 3. Permits and Fees.
 - 4. Visit to Job Site.
 - 5. Workmanship.
 - 6. Drawings and Specifications.
 - 7. Tests.
 - 8. Allowance for added work.
 - 9. Incidental construction work.
 - 10. Access Doors.
 - 11. Supervision.
 - 12. Electrical work by others.
 - 13. Existing facilities, utilities, etc.
 - 14. Adaptation of work to existing conditions.
 - 15. Renovations/alterations.
 - 16. Submittal procedures.
 - 17. Product requirements.
 - 18. Closeout procedures.
 - 19. Operation and Maintenance Manuals.
 - 20. As-built Documents.
 - 21. Demonstration and Training.
 - 22. Warranty.

PART 2 - NOT APPLICABLE

PART 3 - EXECUTION

3.1 GENERAL PROVISIONS

- A. This Contractor's attention is directed to the requirements of Instructions to Bidders, General Conditions and Supplementary General Conditions as bound in the specifications which apply in full to the ELECTRICAL work.
- B. Where the requirements of this Division conflict with other articles in these Specifications, the Contractor shall utilize the more stringent method.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

3.2 SCOPE

- A. Provide all labor, materials, tools, equipment, and transportation, and perform all operations necessary for and reasonably incidental to proper execution and completion of all "ELECTRICAL" work, whether specifically mentioned or not, all as indicated, specified herein, and/or implied thereby to carry out the apparent intent thereof.
- B. These drawings may be superseded by later revised or detailed drawings, specifications, or sketches prepared by the Designer, as needed for clarification, and this Contractor shall conform to all reasonable coordination requests.
- C. All items not specifically mentioned in the specifications or noted on the drawings, but which obviously are required to make the working installation complete, shall be included automatically.
- D. For projects which are bid or awarded as Single Prime contracts, organization of the Specifications into divisions, sections, and articles, and arrangement of the Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be done by any trade, unless specifically shown or noted otherwise.

3.3 PERMITS AND FEES

- A. This Contractor shall secure all permits required for the completion of this contract. He shall obtain and deliver to the Owner all certificates of inspection issued by the authorities having jurisdiction.

3.4 VISIT TO JOB SITE

- A. Before submitting a bid, this Contractor shall visit the job site for the purpose of thoroughly examining the site and conditions under which the work must be performed.
- B. The submission of a bona fide bid will be construed to mean that this Contractor understands and is satisfied with conditions under which the contract must be fulfilled.
- C. No extra compensation will be allowed for situations arising from failure of this Contractor to be thoroughly familiar with site conditions, including charges and requirements for connection to utilities as shown for this project.

3.5 WORKMANSHIP

- A. Workmanship in the fabrication, preparation, and installation of materials and equipment shall conform to the best standards of practice of the trades involved.
- B. Work shall be performed by experienced and skilled mechanics under the supervision of a competent foreman.
- C. Substandard workmanship will be cause for rejection of work and replacement by Contractor.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

- D. The Contractor shall reimburse the Designer for all costs incurred by the Designer due to Contractor's substandard or non-conforming work.

3.6 DRAWINGS AND SPECIFICATIONS

- A. The drawings show the location and arrangement of fixtures, piping, and equipment, together with details of connections of certain principal items.
- B. The layout shown shall be followed as closely as circumstances will permit, but this Contractor shall lay out his work so as to avoid conflict with other Contractors and trades, and to avoid any unnecessary cutting or damage to walls, floors, and supporting structural members.
- C. This Contractor shall carefully and accurately locate all sleeves and install at the proper time all necessary hangers, inserts, etc., which will be required for the completion of his work, and shall be solely responsible for the accurate and proper location of above items.
- D. This Contractor shall refer to architectural, mechanical, and electrical drawings and shall cooperate fully with other Contractors and trades while installing piping, fixtures, and other equipment because of close space limits.
 - 1. In case of conflict, notify Designer before proceeding with installation.
 - 2. Refer to architectural drawings for exact building dimensions and location of partition walls, doors, chases, etc.
 - 3. ELECTRICAL drawings are not to be scaled for such dimensions.
- E. The drawings and specifications complement each other and together are intended to give a complete description of the work.
 - 1. Any item of equipment or note of work to be done as shown on plans and not mentioned in the specifications, or mentioned in specifications and not shown in plans, shall be furnished the same as if mentioned or shown in both places.
 - 2. If conflicts exist, then the most stringent method shown or described shall apply.
- F. Any switches, controls, or equipment included in this contract work (drawings and/or specifications) that are not specifically shown on drawings shall be located for convenient use and access.
- G. Contractor shall coordinate all equipment arrangement and lay-out in field prior to beginning any actual installation of his work.
- H. If Contractor notes any discrepancy, omission, or conflict found in plans or specifications, he shall call to the immediate attention of the Designer, prior to receipt of bids.
- I. It is the intention that piping, air ducts and light fixtures are designed and laid out to clear each other.
 - 1. It shall be the responsibility of this Contractor to coordinate his work with that of other trades to avoid any such conflicts.
 - 2. Any conflicts that occur after work of one trade is installed and was not prior coordinated shall be relocated or rearranged at the total expense of this Contractor, as directed by Designer.
 - 3. Any conflicts that cannot be corrected in field by relocation or elevation changes shall be reported to the Designer in writing prior to any installation.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

- J. The drawings are not intended to show each and every complete or accurate detail.
 - 1. The figures and writing on drawings shall be taken instead of scaling.
 - 2. It is this Contractor's responsibility to comply with the evident intent for centering and symmetric arrangement.
 - 3. This Contractor shall take and be responsible for all field measurements.
 - 4. Exact locations and relations are to be defined in the field and shall be satisfactory to the Designer.

- K. Because of the small scale of ELECTRICAL drawings it is not possible to indicate all offsets, fittings, and accessories which may be required.
 - 1. Investigate structural and finish conditions affecting this work and arrange work accordingly, providing such fittings and accessories that may be required to meet the conditions.

3.7 TESTS

- A. The Designer reserves the right to conduct acceptance tests of all equipment, piping, or any other work furnished under these specifications to determine the fulfillment of special requirements.
 - 1. Such tests shall be conducted in the presence of authorized representatives of the Contractor, Owner, Engineer, and Architect at such time as the Designer may designate.
 - 2. This Contractor shall perform all tests, bear cost of same and make adjustments of equipment and wiring as may be deemed necessary by the Designer.

3.8 ALLOWANCE FOR ADDED WORK

- A. Before proceeding with any work for which compensation may be claimed or the Owner may claim credit, a detailed estimate shall first be submitted and approved in writing.
 - 1. No claim for addition to the contract sum will be valid unless so ordered and approved by the Owner and Designer, prior to start of work.
 - 2. Any conflicts corrected by relocation or elevation changes do not constitute extra work.

3.9 INCIDENTAL CONSTRUCTION WORK

- A. All blocking for openings for piping in concrete floors, masonry walls or partitions shall be provided by this Contractor.
 - 1. This Contractor shall do all cutting and fitting of his work and of other work that may be required to make the several parts come together properly and to fit his work to receive or be received by the work of other Contractors as shown upon, or reasonably implied by the drawings and specifications.
 - 2. He shall properly complete and finish up his work after other Contractors have finished as the Designer may direct.

- B. All excavating required for the installation of this system shall be done by this Contractor.
 - 1. Backfill shall be accomplished as specified in appropriate section of specifications.

- C. Chases are prohibited in masonry walls which are not to be plastered or paneled.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

1. Set piping, blocking, carriers, etc. indicated to be concealed before walls are constructed in order that walls may be constructed around them.
 2. This Contractor shall furnish all sleeves in floors, beams, walls, etc., for each such penetration as needed for installing his work and installation of sleeves by General Contractor.
- D. Unless otherwise noted, the General Contractor will provide openings and lintels as new construction progresses, but this Contractor shall fully designate his requirements prior to construction.
1. Failure to furnish his requirements prior to building construction and failure to coordinate his work with the building construction shall make this Contractor responsible for removing, replacing and painting building construction as required for installation of his work.

3.10 ACCESS DOORS

- A. Provide and install access doors in walls, ceilings, etc. as required for access to junction boxes, terminal cabinets, controls, and other devices requiring access in ceilings, chases, soffits, etc.
- B. Access doors in non-fire rated walls or ceilings shall be as follows:
1. Nominal 24" x 24" minimum size.
 2. 16-gage steel frame with 14-gage door panel and galvanized steel drywall bead.
 3. Flush style with provision to conceal flange with drywall cement.
 4. Double-acting concealed spring hinges to allow opening to 175 degrees.
 5. Flush, Allen-head operated with steel cam.
 6. Gray prime-painted steel, for painting to match adjacent finished surfaces.
 7. Basis of Design: Milcor Style DW; Comparable Products by Karp, Elmdor, Acudor.
- C. Access doors in fire-rated walls or ceilings shall be as follows:
1. Nominal 24" x 24" minimum size.
 2. UL 1-1/2 hour, Class B fire rating.
 3. Prime-painted stainless steel: 16-gage frame with 20-gage door panel, for painting to match adjacent finished surfaces.
 4. 2" mineral fiber insulation between inner and outer panel.
 5. Continuous hinge, steel with stainless steel pin.
 6. Self-closing and self-latching panel closer.
 7. Flush mounted paddle latch and locking system with flush, key-operated cylinder lock with two keys.
 8. Basis of Design: Milcor Style UFR; Comparable Products by Karp, Elmdor, Acudor.

3.11 SUPERVISION

- A. This Contractor shall have in charge of the work at all times during construction a thoroughly competent foreman with extensive experience in the work to be performed under this contract.
1. Anyone deemed not capable by the Designer shall be replaced immediately upon request, and after satisfactory foreman has been assigned, he shall not be withdrawn without the written consent of the Designer.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

3.12 ELECTRICAL WORK BY OTHERS

- A. Refer to the drawings for the details of locations of circuit breakers, junction boxes, disconnect switches, conduits and slack wire required where this contractor's electrical work terminates and electrical work by others begins.
- B. The Electrical Contractor shall furnish and install all power circuits for equipment furnished by others.
- C. In Mechanical Rooms the wiring by the Electrical Contractor shall generally terminate in a power wiring gutter, line side of disconnect switches or starters, junction box, or electrical panel.
 - 1. From these points power wiring to the equipment furnished by the ELECTRICAL Contractor shall generally be by the ELECTRICAL Contractor.
 - 2. Power wiring to mechanical equipment outside equipment rooms will generally be run by the Electrical Contractor to line side of a disconnect switch or junction box in the vicinity (within 3'-0") of the ELECTRICAL equipment.
 - 3. Power wiring from that point to the equipment will be by the ELECTRICAL Contractor.
- D. ELECTRICAL Contractor is to refer to the drawings for location and type of service connections to be provided under the electrical contract.
 - 1. Where service disconnect switches are required and not furnished as part of the equipment, they shall be furnished and installed by contractor that furnishes the equipment, unless indicated otherwise.
 - 2. Other Contractors shall furnish and install conduit, boxes, wiring and all items of control for equipment they furnish or Owner furnished equipment, unless specifically shown on electrical drawings.

3.13 EXISTING FACILITIES

- A. In existing facilities, disruption of operations must be kept to a minimum and coordinated with Owner.
 - 1. Work in existing buildings must be cleaned up daily immediately after finishing that portion of work and equipment left in order for Owner to continue operations.
 - 2. When it is necessary to interrupt utility services in the fulfillment of this contract, such interruptions shall be kept to a minimum and coordinated with Owner.
 - 3. Once work has begun, it shall be pursued diligently until completed.
- B. Every precaution shall be taken to prevent damage to existing underground lines and structures and public utilities.
 - 1. Damage to existing water and sewer lines, culverts, service connections, underground cables, and similar surface and sub-surface structures shall be at the risk of this Contractor, whether or not locations thereof are shown on plans, and the repairing of such damage shall be by this Contractor and shall be completed without delay.
 - 2. Compensation for such repairs shall be based on normal and reasonable costs.
- C. The locations of any existing underground utilities that are shown are in an approximate way only and have not been independently verified by the Owner or its representative.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

1. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.

3.14 ADAPTATION OF WORK TO EXISTING CONDITIONS

- A. It is reasonably implied that this Contractor shall furnish all labor and materials to provide Owner with a new and satisfactory system in these facilities.
 1. Contractor is to include necessary work for adaptation of equipment to conditions that may be found to produce conflicts during construction.
 2. When any such conditions are encountered, this Contractor is to consult with Designer and then modify installation as directed without additional costs, and to include any incidental materials required.

3.15 RENOVATIONS/ALTERATIONS

- A. Before any work is started in existing building, ELECTRICAL Contractor shall make a thorough survey with Designer and a representative of the Owner of building in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed by all three to Designer. This report shall list by rooms and spaces:
 1. Existing conditions and types of resilient flooring, doors, windows, wall and other surfaces not required to be altered throughout and affected areas of building.
 2. Existence and conditions and operation of items such as ELECTRICAL fixtures, water heaters, valves, etc., required by drawings to be either reused for relocated, or both.
 3. Any discrepancies between drawings and existing conditions at site.
 4. Areas for working space, materials storage and routes of access to areas within buildings where alterations occur and which have been agreed upon by Contractor and Designer.
- B. Any items required by drawings to be either reused or relocated or both, found during this survey to be nonexistent, or in opinion of Designer and Owner's representative, to be in such condition that their use is impossible or impractical, shall be removed and a proposal submitted by Contractor to replace with new items in accordance with specifications which will be furnished by Designer.
- C. Re-Survey: Fifteen days before expected partial or final inspection date, Contractor, Designer, Owner's representative, together shall make a thorough re-survey of the areas of buildings involved.
 1. They shall furnish a report on conditions then existing, of ELECTRICAL fixtures, equipment, etc. as compared with conditions of same as noted in first condition survey report.
 2. Re-survey report shall also list any damage caused by this Contractor to such flooring and other surfaces, despite protection measures; and, will form basis for determining extent of repair work required of this Contractor to restore damage caused by Contractor's workmen in executing work of this Contract.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

3.16 SUBMITTAL PROCEDURES

- A. Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - 3. Designer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- B. Contractor approval: Affix review stamp to cover sheet, with initials and date of Contractor's approval of submittals.
 - 1. By submitting Shop Drawings, Product Data, Samples and similar submittals, this Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria and details related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work, the Contract Documents and the Work of other trades.

- C. Comply with requirements in Division 01 Sections for list of submittals and time requirements for scheduled performance of related construction activities.

- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows.
 - 1. Time for review shall commence on Designer's receipt of submittal.
 - 2. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 3. Allow 21 days for initial review of each submittal.
 - a. Allow additional time if coordination with subsequent submittals is required.
 - b. Designer will advise Contractor when a submittal being processed must be delayed for coordination.
 - 4. Allow 15 days for review of each resubmittal.

- E. Identification: Identify submittals as required in Division 01 sections.

- F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
 - 1. Summarize deviations on transmittal or List of Deviations included with submittal.

- G. Coordinate first paragraph and subparagraph below with office policy. Marking numerous copies of submittals can be time consuming.

- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling.
 - 1. Transmit each submittal using a transmittal form.
 - 2. Designer will discard submittals received from sources other than Contractor.

- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked "Furnish as Submitted" or "Furnish as Corrected."
 4. Where submittals contain specific questions or comments, provide a separate sheet with specific answers to each question or comment.
- J. At Contractor's written request, copies of Designer's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
1. Allow 21 days from Designer's receipt of written request for CAD files for delivery of files
 2. Files will be delivered via email or compact disc.
 3. Files will be delivered without RN&M Title Blocks, standard details, schedules, etc.
 4. CAD files provided for Contractor's use are not to be construed as the Contract Documents. Use of CAD files for submittals or other uses are at the Contractor's risk.
- K. Prepare and submit Action Submittals required by individual Specification Sections.
1. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 2. Number of Copies: Submit at least eight copies of Product Data, unless otherwise indicated.
 - a. Designer will return all but three copies.
 - b. Retain or duplicate sufficient copies for inclusion in Operation and Maintenance Manuals.
 3. Shop Drawings: Prepare Project-specific information, drawn accurately to scale.
 - a. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal of Designer's CAD Drawings is otherwise permitted.
 4. Revise subparagraph below to establish a standard sheet size and format.
 5. Sheet Size: At least 8-1/2 by 11 inches but no larger than size of project drawings.
 6. Subparagraph below assumes Architect and Contractor will make copies from opaque print.
 7. Number of Copies: Two opaque (bond) copies of each submittal. Designer will return one copy.
 8. Manufacturers and Materials Suppliers List: Submit three copies of manufacturers and materials suppliers list within 20 days of Contract Award, unless otherwise indicated. Designer will return two copies.
 9. If needed, combine subcontract list in paragraph below with product list above. Subcontract list is required by AIA Document A201 to be submitted as soon as practical after award of the Contract.
 10. Subcontract List: Submit within 20 days of Contract Award three copies of list of proposed subcontractors. Designer will return two copies. Subcontract list to include all tiers of subcontractors.
- L. Contractor's Review and Approval: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents.
1. Note corrections and field dimensions.
 2. Mark with approval stamp before submitting to Designer.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

- M. Designer's Action: Designer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
 - 1. Designer will review each submittal, make marks to indicate corrections or modifications required, and return it.
 - 2. Designer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
 - a. Furnish as Submitted
 - b. Furnish as Corrected: Incorporate comments marked on or attached to submittal.
 - c. Revise and Resubmit: Major items of the submittal do not comply, requiring a resubmittal.
- N. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- O. Submittals not required by the Contract Documents may not be reviewed and may be discarded.
- P. The Contractor is responsible for compliance with the Contract Documents, dimensions, details, coordination, and satisfactory performance of materials and equipment provided and installed.

3.17 PRODUCT REQUIREMENTS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Basis-of-Design Product: Item identified by manufacturer's product name, make, and model number, used to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, dimensions, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
 - 2. Comparable Product: Product that is listed in the Contract Documents, or added by Addendum, and demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified or basis-of-design product.
 - 3. Owner-preferred Alternate Product: Product that is listed in the Contract Documents, and for which an Alternate Bid price is submitted. When an Alternate Bid item is accepted in the Contract, no substitutions will be allowed.
 - 4. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor after award of Contract.
 - 5. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
- B. Comparable Product Requests: Submit three copies of each request for consideration, at least 10 days prior to receipt of bids, for products not listed in the Contract Documents.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for Comparable Products and the following, as applicable:
 - a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed product.
 - b. Detailed comparison of significant qualities of proposed product with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - c. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 2. Designer's Action: If necessary, Designer will request additional information or documentation for evaluation. Designer will notify Contractor of approval or rejection of proposed comparable product request.
 - a. Form of Approval: Addition of the item to the list of Comparable Products by Addendum, prior to receipt of bids.
 - b. Use product specified if Designer cannot make a decision on use of a comparable product request within time allocated.
- C. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, features, options, and other items needed for a complete installation and indicated use and effect, and as required or recommended by the manufacturer for a complete installation, whether or not specifically indicated on the drawings or specifications.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Designer will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
- D. Product Selection Procedures:
1. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 2. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 3. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.
- E. Responsibility of the Contractor: The responsibility for determining dimensions, utility requirements, fitting of work with other trades, sequencing and coordination of work, for Product Substitutions and Comparable Products rests solely with the Contractor.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

- F. **Manufacturer's Warranties:** Where specifications require manufacturer's warranties, the provisions of the Contract Documents take precedence over any manufacturer's "standard" warranty provisions, exclusions, etc.
 - 1. The start of manufacturer's warranties shall be the date of Substantial Completion of the project or phase of the project, notwithstanding any language or exclusion in any document submitted by the contractor or manufacturer.

3.18 CLOSEOUT PROCEDURES

- A. **Substantial Completion:** Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Complete startup testing of systems.
 - 3. Submit test records.
 - 4. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 - 5. Complete final cleaning requirements, including touchup painting.
 - 6. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 - 7. Submit a written request for inspection for Substantial Completion. On receipt of request, Designer will either proceed with inspection or notify Contractor of unfulfilled requirements.
 - 8. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 9. Results of completed inspection will form the basis of requirements for Final Completion.
- B. **Final Completion:** Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit certified copy of Designer's Substantial Completion 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. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit documentation of training.
 - 3. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Designer will either proceed with inspection or notify Contractor of unfulfilled requirements.
 - 4. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

- C. Cleaning: This Contractor shall provide all systems and equipment in a new and clean condition.
 - 1. Clean all items furnished and installed in accordance with manufacturer's recommendations.
 - 2. Provide instruction to Owner in proper cleaning of all items provided as part of this Division.
 - 3. Cooperate with General Contractor in cleaning of building.

3.19 OPERATION AND MAINTENANCE MANUALS

- A. Submit four complete copies of Operation and Maintenance Manuals to Designer for review prior to request for inspection for Substantial Completion.
- B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.
- C. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name, address, and telephone number of Contractor.
 - 6. Name and address of Architect.
 - 7. Name and address of Engineer.
- D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- E. List of Material Suppliers and Subcontractors: List contact information for each material supplier and subcontractor.
- F. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
 - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
- G. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- H. Descriptions: Include the following: Product name and model number, Manufacturer's name, Equipment identification with serial number of each component, Equipment function, Operating characteristics, Limiting conditions, Performance curves, Engineering data and tests, Complete nomenclature and number of replacement parts.
- I. Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.
- J. Describe the sequence of operation, and diagram controls as installed.
- K. List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- L. Provide manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:
- M. Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions that detail essential maintenance procedures:
- N. Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- O. Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- P. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
- Q. Provide complete approved submittal data with all annotations.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

- R. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

3.20 AS-BUILT DOCUMENTS

- A. As-built Marked Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings.
 - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally.
 - 2. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up As-built Marked Prints.
 - 3. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - 4. Record data as soon as possible after installation.
 - 5. Record and check the markup before enclosing concealed installations.
 - 6. Indicate dimensions to locate underground and concealed conduits and lines from fixed reference points.
 - 7. Indicate burial depth for underground lines.
 - 8. Indicate location of all valves and cross-reference to valve tag list.
 - 9. Mark the Contract Drawings completely and accurately.
 - a. Mark record sets with erasable, red-colored pencil.
 - b. Note Addendum numbers, Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
 - 10. Maintain As-built Marked Prints in a clean, legible, up-to-date condition in the project office, and available to the Designer for inspection upon request throughout construction.
 - 11.
 - 12. In first paragraph and subparagraphs below, architects may want to delete titleblock information from CAD files provided to Contractor. See Evaluations. Consult Owner for format required.
- B. Record Specifications: Mark Specifications 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. Note related Change Orders and As-built Marked Prints where applicable.

3.21 DEMONSTRATION AND TRAINING

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season. Schedule training with Owner with at least seven days' advance notice.

DIVISION 26

SECTION 260050: COMMON WORK RESULTS FOR ELECTRICAL

- C. Warranty service: Train Owner in repair and troubleshooting during each warranty service call.
- D. For each training session, submit on letterhead name of trainer, date of training, names of Owner's personnel trained, and systems/equipment trained on.
- E. For factory training, documentation to be on letterhead of organization conducting training.

3.22 WARRANTY

- A. This Contractor shall guarantee all materials, equipment, workmanship and each and every piece of apparatus which he furnished and which he installs under this contract against defects and failures of any nature for a period of one year from date on which the system is accepted.
- B. Apparatus furnished by this Contractor shall be guaranteed to be satisfactory when operated under rated conditions in accordance with manufacturer's instructions and to be of size, function, and capacity specified on drawings or in the specifications.
- C. Equipment manufacturers shall warrant equipment furnished for this project for same time span as installing contractors warranty period as set above and elsewhere in these specifications.
 - 1. Warranty start date shall be as established by the Designer. Refer to General Conditions, Supplementary General Conditions, and Division 1 specifications for establishment of warranty start dates.
 - 2. The provisions of the Contract Documents supersede and override any manufacturer's standard warranty provisions.
- D. Upon notice from the Designer or Owner, Contractor shall immediately check system, make necessary repairs or adjustments as required; due to faulty workmanship, materials, faults, operation or equipment, without cost to the Owner, and instruct Owner in proper operation, adjustment, and care of systems.
- E. During the one-year warranty period, the Contractor shall be responsible for all preventive maintenance, including routine lubrication, filter changing, inspections, and adjustments.
 - 1. Contractor shall provide all materials, consumables, equipment, supplies, etc. required for preventive maintenance.
 - 2. Perform preventive maintenance in accordance with manufacturer's recommendations.
 - 3. During preventive maintenance, instruct Owner in proper preventive maintenance procedures.
- F. The Contractor shall submit service call tickets, reports, or other documentation of each warranty service call to the Designer.

END OF SECTION 220500

DIVISION 26

SECTION 260519: LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Building wires and cables rated 600 V and less.
 - 2. Connectors, splices, and terminations rated 600 V and less.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.3 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

2.1 CONDUCTORS AND CABLES

- A. Copper Conductors: Comply with NEMA WC 70.
- B. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN.
- C. Multiconductor Cable: Comply with NEMA WC 70 for metal-clad cable, Type MC with ground wire.

2.2 CONNECTORS AND SPLICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Hubbell Power Systems, Inc.
 - 3. O-Z/Gedney; EGS Electrical Group LLC.
 - 4. 3M; Electrical Products Division.
 - 5. Tyco Electronics Corp.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN-THWN, single conductors in raceway.
- B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN-THWN, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
- E. Exposed Branch Circuits, Including in Crawlspace: Type THHN-THWN, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.
- G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
- H. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

DIVISION 26

SECTION 260519: LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- I. Class 1 Control Circuits: Type THHN-THWN, in raceway.
 - J. Class 2 Control Circuits: Type THHN-THWN, in raceway Power-limited cable, concealed in building finishes, or Power-limited tray cable, in cable tray.
- 3.3 INSTALLATION OF CONDUCTORS AND CABLES
- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
 - B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
 - C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
 - D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
 - E. Support cables according to Division 26 Sections "Hangers and Supports for Electrical Systems."
 - F. Identify and color-code conductors and cables according to Division 26 Section "Identification for Electrical Systems."
 - G. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
 - H. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.
 - I. Wiring at Outlets: Install conductor at each outlet, with at least **6 inches** of slack.
- 3.4 FIELD QUALITY CONTROL
- A. Perform tests and inspections and prepare test reports.
 - B. Tests and Inspections:
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
 - 2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.
 - a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
 - b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
 - C. Test Reports: Prepare a written report to record the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
 - D. Remove and replace malfunctioning units and retest as specified above.
- END OF SECTION 260519

DIVISION 26

SECTION 260526: GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes methods and materials for grounding systems and equipment.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.3 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 UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, **1/4 inch** in diameter.
 - 4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 5. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; **1-5/8 inches** wide and **1/16 inch** thick.

2.2 CONNECTORS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: [**Copper-clad**] steel; [**3/4 inch by 10 feet**] in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.
- B. Underground Grounding Conductors: Install barecopper conductor, No. 2/0 AWG minimum. Bury at least **24 inches** below grade.
- C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.
- D. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.

DIVISION 26

SECTION 260526: GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1. Feeders and branch circuits.
 - 2. Lighting circuits.
 - 3. Receptacle circuits.
 - 4. Single-phase motor and appliance branch circuits.
 - 5. Three-phase motor and appliance branch circuits.
 - 6. Flexible raceway runs.
 - 7. Armored and metal-clad cable runs.
 - 8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
 - 9. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.
 - 10. X-Ray Equipment Circuits: Install insulated equipment grounding conductor in circuits supplying x-ray equipment.
- B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- D. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
- E. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
- F. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
 - 1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a **1/4-by-2-by-12-inch** grounding bus.
 - 2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.
- G. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

DIVISION 26

SECTION 260526: GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are **2 inches** below finished floor or final grade, unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.
 - 2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least **12 inches** deep, with cover.
 - 1. Test Wells: Install at least one test well for each service, unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.
- D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
 - 3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.
- E. Grounding and Bonding for Piping:
 - 1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
 - 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
 - 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- F. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.

3.4 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections and prepare test reports:
 - 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 - 2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells.
 - a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than

DIVISION 26

SECTION 260526: GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

b. Perform tests by fall-of-potential method according to IEEE 81.

B. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity 500 kVA and Less: **[10]** ohms.
2. Power and Lighting Equipment or System with Capacity 500 to 1000 kVA: **[5]** ohms.
3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: **[3]** ohms.
4. Power Distribution Units or Panelboards Serving Electronic Equipment: **[3]** ohm(s).

C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Designer promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

DIVISION 26

SECTION 260529: HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.3 SUBMITTALS

- A. Product Data: For steel slotted support systems.
- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
 - 1. Trapeze hangers. Include Product Data for components.
 - 2. Steel slotted channel systems. Include Product Data for components.
 - 3. Equipment supports.
- C. Welding certificates.

1.4 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Tyco International, Ltd.
 - g. Wesanco, Inc.
 - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 3. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
 - 4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 - 5. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors

DIVISION 26

SECTION 260529: HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

- E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
 - F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Hilti Inc.
 - 2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 3) MKT Fastening, LLC.
 - 4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.
 - 2. Mechanical-Expansion Anchors: Insert-wedge-type, **[zinc-coated]** steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
 - 3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
 - 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
 - 5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
 - 6. Toggle Bolts: All-steel springhead type.
 - 7. Hanger Rods: Threaded steel.
- 2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES
- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
 - B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.
- PART 3 - EXECUTION
- 3.1 APPLICATION
- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
 - B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be **1/4 inch** in diameter.
 - C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports with **[two-bolt conduit clamps]**.

DIVISION 26

SECTION 260529: HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

- D. Spring-steel clamps designed for supporting single conduits without bolts may be used for **1-1/2-inch** and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.
- 3.2 SUPPORT INSTALLATION
- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
 - B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
 - C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus **200 lb**.
 - D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete **4 inches** thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than **4 inches** thick.
 - 6. To Steel: [**Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69**].
 - 7. To Light Steel: Sheet metal screws.
 - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.
 - E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.
- 3.3 INSTALLATION OF FABRICATED METAL SUPPORTS
- A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.
 - B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
 - C. Field Welding: Comply with AWS D1.1/D1.1M.
- 3.4 CONCRETE BASES
- A. Construct concrete bases of dimensions indicated but not less than **4 inches** larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
 - B. Use **3000-psi**, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Miscellaneous Cast-in-Place Concrete."
 - C. Anchor equipment to concrete base.

DIVISION 26

SECTION 260529: HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
- 3.5 PAINTING
- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 1. Apply paint by brush or spray to provide minimum dry film thickness of **2.0 mils**.
 - B. Touchup: Comply with requirements in Division 09 painting Sections for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
 - C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

DIVISION 26

SECTION 260533: RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

SECTION 260533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SCOPE

- A. The work under this section includes conduits, surface raceways, multi-outlet assemblies, auxiliary gutters, wall duct, and boxes for electrical systems including wall and ceiling outlet boxes, floor boxes, and junction boxes.

1.2 SUBMITTALS

- A. Surface Raceway System - submit product data and catalog sheets for all components.
- B. Boxes - provide product data showing configurations, finishes, dimensions, and manufacturer's instructions.

PART 2 - PRODUCTS

2.1 RIGID METAL CONDUIT AND FITTINGS

- A. Conduit: Heavy wall, galvanized steel, schedule 40, threaded.
- B. Fittings and Conduit Bodies: Use all steel threaded fittings and conduit bodies.

2.2 PVC COATED RIGID METAL CONDUIT

- A. PVC Externally Coated Conduit: Rigid heavy wall, schedule 40, steel conduit with external 40 mil (0.1 mm) PVC coating. Conduit must be hot dipped galvanized inside and out including threads. The PVC coating bond to the galvanized steel conduit shall be stronger than the tensile strength of the coating itself.
- B. Fittings and Conduit Bodies: Threaded type, material to match conduit. PVC coated fittings and couplings shall have specially formed sleeves to tightly seal to conduit PVC coating. The sleeves shall extend beyond the fitting or coupling a distance equal to the pipe outside steel diameter or two inches (50 mm) whichever is greater.

2.3 INTERMEDIATE METAL CONDUIT (IMC) AND FITTINGS

- A. Conduit: Galvanized steel, threaded.
- B. Fittings and Conduit Bodies: Use all steel threaded fittings and conduit bodies.

2.4 ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS

- A. Conduit: Steel, galvanized tubing.
- B. Fittings: All steel, set screw, water tight, concrete tight. No push-on or indenter types permitted.
- C. Conduit Bodies: All steel threaded conduit bodies.

2.5 FLEXIBLE METAL CONDUIT AND FITTINGS

- A. Conduit: steel, galvanized, spiral strip.
- B. Fittings and Conduit Bodies: All steel, galvanized, or malleable iron.

2.6 LIQUIDTIGHT FLEXIBLE METAL CONDUIT AND FITTINGS

- A. Conduit: flexible, steel, galvanized, spiral strip with an outer Liquidtight, nonmetallic, sunlight-resistant jacket.
- B. Fittings and Conduit Bodies: ANSI/NEMA FB 1, compression type. There shall be a metallic cover/insert on the end of the conduit inside the connector housing to seal the cut conduit end.

2.7 RIGID NONMETALLIC CONDUIT AND FITTINGS

- A. Conduit: Schedule 40 PVC minimum, Listed, sunlight resistant, rated for 90° C conductors.
- B. Fittings and Conduit Bodies: NEMA TC 2, Listed.

2.8 SURFACE METAL RACEWAY

- A. Description: Sheet metal channel with fitted cover, suitable for use as surface metal raceway.
- B. Size: As shown on Drawings.
- C. Finish: Color selection by Architect.

DIVISION 26

SECTION 260533: RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

- D. Fittings: Couplings, elbows, and connectors designed for use with raceway system.
- E. Boxes and Extension Rings: Designed for use with raceway systems.
- 2.9 SURFACE NONMETAL RACEWAY
 - A. Description: Nonmetallic channel with fitted cover, suitable for use as surface raceway.
 - B. Size: As shown on Drawings.
 - C. Finish: Color selection by Architect.
 - D. Fittings: Couplings, elbows, and connectors designed for use with raceway system.
 - E. Boxes and Extension Rings: Designed for use with raceway systems.
- 2.10 AUXILIARY GUTTERS (Wireways)
 - A. Description: General purpose, Oil-tight and dust-tight, or Rain-tight type wireway without knockouts.
 - B. Size: Cross-section and length as indicated on drawings.
 - C. Cover: Hinged cover with full gasketing, where required by application.
 - D. Connector: [hinged cover.]
 - E. Fittings: Lay-in type with [removable top, bottom, and side; captive screws.]
 - F. Finish: Rust inhibiting primer coat with gray enamel finish.
- 2.11 OUTLET BOXES
 - A. Sheet Metal Outlet Boxes: galvanized steel, with stamped knockouts.
 - B. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 3/8 inch male fixture studs where required.
 - C. Concrete Ceiling Boxes: Concrete type.
 - D. Cast Boxes: Cast ferroalloy, or aluminum type deep type, gasketed cover, threaded hubs.
- 2.12 FLOOR BOXES
 - A. Floor Boxes for Installation in Cast-In-Place Concrete Floors: As shown and detailed on Drawings.
- 2.13 PULL AND JUNCTION BOXES
 - A. Pull boxes and junction boxes shall be minimum 4 inch square (100 mm) by 2 1/8th inches (54 mm) deep for use with 1 inch (25 mm) conduit and smaller. On conduit systems using 1 1/4 inch (31.75 mm) conduit or larger, pull and junction boxes shall be sized per NEC but not less than 4 11/16 inch square (117 mm).
 - B. For telecommunication, fiber optic, security, and other low voltage cable installations the NEC box size requirements shall apply. All boxes, used on telecommunication, security, other low voltage and fiber optic systems with conduits of 1 1/4" and larger, shall be sized per the NEC conduit requirements. For determining box size, the conduit is the determining factor not the wire size.
 - C. Sheet Metal Boxes: code gauge galvanized steel, screw covers, flanged and spot welded joints and corners.
 - D. Sheet Metal Boxes Larger Than 12 Inches (300 mm) in any dimension shall have a hinged cover or a chain installed between box and cover.
 - E. Cast Metal Boxes for Outdoor and Wet Location Installations: Type 4 and Type 6, flat-flanged, surface-mounted junction box, UL listed as raintight. Galvanized cast iron or aluminum box and cover with ground flange, neoprene gasket, and stainless steel cover screws.
 - F. Fiberglass or Concrete Handholes with weatherproof cover of non-skid finish shall be used for underground installations.
 - G. Box extensions and adjacent boxes within 48" of each other are not allowed for the purpose of creating more wire capacity.
 - H. Junction boxes 6" x 6" or larger size shall be without stamped knock-outs.

DIVISION 26

SECTION 260533: RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

- I. Wireways shall not be used in lieu of junction boxes.
- 2.14 GENERAL
 - A. All steel fittings and conduit bodies shall be galvanized.
 - B. No cast metal, split or gland type fittings permitted.
 - C. Condulets larger than 2 inch are (50 mm) not permitted except as approved or detailed.
 - D. All conduit covers must be fastened to the conduit body with screws and be of the same manufacture.
 - E. Wireways and gutters shall not be used in lieu of pull boxes and condulets.
 - F. All boxes shall be of sufficient size to provide free space for all conductors enclosed in the box and shall comply with NEC requirements.

PART 3 - EXECUTION

3.1 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

- A. EMT is permitted to be used in sizes 4" and smaller for power and telecommunication systems. See CONDUIT INSTALLATION SCHEDULE below for other limitations for EMT and other types of conduit.
- B. Size power conductor raceways for conductor type installed. Conduit size shall be 3/4 inch minimum except as specified elsewhere. **Caution: Per the NEC, the allowable conductor ampacity is reduced when more than three current-carrying conductors are installed in a raceway. Contractor must take the NEC ampacity adjustment factors into account when sizing the raceway and wiring system.**
- C. Size conduit for all other wiring, including but not limited to data, control, security, fire alarm, telecommunications, signal, video, etc. shall be sized per number of conductors pulled and their cross-section. 40% fill shall be maximum for all new conduit fills.
- D. Arrange conduit to maintain headroom and present a neat appearance.
- E. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.
- F. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized pipe straps, conduit racks (lay-in adjustable hangers), clevis hangers, or bolted split stamped galvanized hangers.
- G. Group conduit in parallel runs where practical and use conduit rack (lay-in adjustable hangers) constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.
- H. Do not fasten conduit with wire or perforated pipe straps. Before conductors are pulled, remove all wire used for temporary conduit support during construction.
- I. Support and fasten metal conduit at a maximum of 8 feet on center, and as required by NEC.
- J. Supports shall be independent of the installations of other trades, e.g. ceiling support wires, HVAC pipes, etc., unless so approved or detailed.
- K. In general, all conduits shall be concealed except where noted on the drawings or approved by the Architect/Engineer. Contractor shall verify with Architect/Engineer all surface conduit installations except in mechanical rooms.
- L. Changes in direction shall be made with symmetrical bends, cast steel boxes, stamped metal boxes or cast steel conduit bodies.
- M. No continuous conduit run shall exceed 100 feet without a junction box.

3.2 CONDUIT INSTALLATION

- A. Cut conduit square using a saw or pipecutter; de-burr cut ends.
- B. Conduit shall not be fastened to the corrugated metal roof deck.
- C. Bring conduit to the shoulder of fittings and couplings and fasten securely.

DIVISION 26

SECTION 260533: RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

- D. Use conduit hubs for fastening conduit to cast boxes. Use sealing locknuts or conduit hubs for fastening conduit to sheet metal boxes in damp or wet locations (sheet metal boxes 4 & 11/16th" square and larger, shall contain NO pre-punched or concentric knockouts).
 - E. All conduit terminations (except for terminations into conduit bodies) shall use connectors or conduit hubs with one locknut or shall use double locknuts (one each side of box wall) and insulating bushing. Provide bushings for the ends of all conduits not terminated in box walls. Refer to Division 26 Sections for grounding bushing requirements.
 - F. Install no more than the equivalent of three 90 degree bends between boxes.
 - G. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2 inch size unless sweep elbows are required.
 - H. Conduit shall be bent according to manufacturers' recommendations. Torches or open flame shall not be used to aid in bend of PVC conduit.
 - I. Use suitable conduit caps or other approved seals to protect installed conduit against entrance of dirt and moisture.
 - J. Provide 1/8 inch (3 mm) nylon pull string in empty conduit, except sleeves and nipples.
 - K. Install expansion-deflection joints where conduit crosses building expansion joints. Note: expansion-deflection joints are not required where conduit crosses building control joints if the control joint does not act as an expansion joint. Install expansion fitting in PVC conduit runs as recommended by the manufacturer.
 - L. Avoid moisture traps where possible. Where moisture traps are unavoidable, provide junction boxes with drain fittings at conduit low points.
 - M. Where conduit passes between areas of differing temperatures such as into or out of cool rooms, freezers, unheated and heated spaces, buildings, etc., provide Listed conduit seals to prevent the passage of moisture and water vapor through the conduit.
 - N. Route conduit through roof openings for piping and ductwork where possible.
 - O. Ground and bond conduit per other Division 26 Sections.
 - P. PVC conduit shall transition to galvanized rigid metal conduit before it enters a concrete pole base, foundation, wall (where exposed) or up through a concrete floor. Transition shall be under the slab or under grade, with a rigid 90-degree bend or elbow.
 - Q. Use PVC-coated rigid steel factory elbows for bends in plastic conduit larger than 2". PVC elbows are allowed in PVC conduit runs 2" and smaller.
 - R. All conduit installed underground (exterior to building) shall be buried a minimum of 24" below finished grade, whether or not the conduit is concrete encased.
 - S. PVC conduit shall be cleaned with solvent, and dried before application of glue. The temperature rating of glue/cement shall match weather condition. Apply full even coat of cement/glue to entire area that will be inserted into fitting. The entire installation shall meet manufacturers' recommendations.
 - T. Medium voltage conduit may be installed in interior locations other than electrical vaults only with special permission from Architect/Engineer.
- 3.3 CONDUIT INSTALLATION SCHEDULE
- A. Conduit other than that specified below for specific applications shall not be used.
 - B. Underground Installations within five feet of foundation fall: Rigid steel conduit.
 - C. Underground Installations more than five feet from foundation fall: Rigid steel conduit. Plastic-coated rigid steel conduit. Schedule 40 PVC conduit. Install in concrete duct bank as detailed on Drawings.
 - D. Under Slab on Grade Installations: Schedule 40 PVC conduit. Where conduit turns up through slab and is exposed, elbow shall be rigid steel conduit.

DIVISION 26

SECTION 260533: RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

- E. Exposed Outdoor Locations: Rigid steel conduit.
 - F. Concealed in Concrete and Block Walls: Rigid steel conduit. Schedule 40 PVC conduit. Electrical Metallic Tubing (EMT).
 - G. Wet Interior Locations: Rigid steel conduit.
 - H. Concealed Dry Interior Locations: Rigid steel conduit. Intermediate metal conduit. Electrical metallic tubing.
 - I. Exposed Dry Interior Locations: Rigid steel conduit.
 - J. Motor and equipment connections: Flexible PVC coated metal conduit (wet, damp, or dry locations). Flexible metal conduit (dry locations only). Minimum length shall be one foot; maximum length shall be three feet. Conduit must be installed perpendicular to direction of equipment vibration to allow conduit to freely flex.
 - K. Light fixtures: Direct box or conduit connection for surface mounted and recessed fixtures. Flexible metal conduit (fixture whip) from a J-box for recessed lay-in light fixtures. Conduit size shall be 3/8" minimum diameter and six foot maximum length. Conduit length shall allow movement of fixture for maintenance purposes. Contractor may use Type MC metal-clad cable in lieu of conduit/wire for fixture whips, size and wire size as specified above.
 - L. Medium Voltage Applications (Interior Locations): Rigid steel conduit.
- 3.4 SURFACE METAL RACEWAY AND MULTI-OUTLET ASSEMBLY INSTALLATION
- A. Use flat-head screws to fasten channel to surfaces every twenty-four (24) inches. Mount plumb and level.
 - B. Use suitable insulating bushings and inserts at connections to outlets and corner fittings.
 - C. Maintain grounding continuity between raceway components to provide a continuous grounding path per Division 26 Sections.
 - D. Fastener Option: Use clips and straps suitable for the purpose.
- 3.5 NONMETALLIC SURFACE RACEWAY INSTALLATION
- A. Use flat headed screws with appropriate anchors to fasten channel to surfaces secured every twenty-four (24) inches. Mount plumb and level. All surface mounted devices shall be fastened to the wall utilizing flat head screws along with appropriate anchors. No device shall be adhered to the wall surface using two-faced tape or any means other than as described above.
 - B. Use suitable insulating bushings and inserts at connections to outlets and corner fittings.
 - C. In areas where the walls cannot be fished, the station cable serving these outlets shall be covered with raceways. No exposed wire shall be permitted within offices, laboratories, and conference rooms or like facilities.
 - D. The non-metallic raceway shall have a screw applied base. Both the base and cover shall be manufactured of rigid PVC materials.
 - E. The raceway shall originate from a surface mounted box mounted adjacent to and at the same height as existing electrical boxes in the room, be attached to the wall and terminate above the ceiling.
 - F. All fittings including, but not limited to, extension boxes, elbows, tees, fixture bodies shall match the color of the raceway.
 - G. The raceway and all systems devices shall be UL listed and exhibit nonflammable self extinguishing characteristics, tested to specifications of UL94V-0.
 - H. The raceway and all systems devices shall adhere to the EIA/TIA Category 5e bend radius standard.

DIVISION 26

SECTION 260533: RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

3.6 AUXILIARY GUTTERS (Wireways) INSTALLATION

- A. Bolt auxiliary gutter to wall using two-piece hangers or steel channels fastened to the wall or in self-supporting structure.
- B. Gasket each joint in oil-tight gutter.
- C. Mount rain-tight gutter in horizontal position only.
- D. Maintain grounding continuity between raceway components to provide a continuous grounding path under Division 26 Sections.
- E. Provide terminal blocks for wiring terminations in auxiliary gutters and wireways.

3.7 COORDINATION OF BOX LOCATIONS

- A. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.
- B. Electrical box locations shown on Contract Drawings are approximate unless dimensioned. Verify location of floor boxes and outlets in offices and work areas prior to rough-in.
- C. No outlet shall be located where it will be obstructed by other equipment, piping, lockers, benches, casework, etc.
- D. Boxes shall not be fastened to the metal roof deck.
- E. Contractor shall study drawings pertaining to other trades, discuss location of outlets with workmen installing other piping, equipment, casework, furnishing, etc., and fit all electrical outlets to job conditions. In case of conflicts, notify Designer prior to installation.
- F. The proper location of each outlet is considered a part of this contract and no additional compensation will be paid to the Contractor for moving outlets which were improperly located.
- G. Locate and install boxes to allow access to them. Where installation is inaccessible, coordinate locations and provide 18 inch by 24 inch access doors.
- H. Locate and install to maintain headroom and to present a neat appearance.
- I. Install boxes to preserve fire resistance rating of partitions and other elements, using approved materials and methods.

3.8 OUTLET BOX INSTALLATION

- A. Do not install boxes back-to-back in walls. Provide minimum 6 inch separation, except provide minimum 24 inch separation in acoustic-rated walls.
- B. Power: Recessed (1/4" maximum) outlet boxes in masonry, concrete or tile construction shall be masonry type, minimum 4 inch square. Device covers shall be square-cut except rounded corner plaster rings are allowed in drywall applications. Angle cut plaster rings are not permitted. Coordinate masonry cutting to achieve neat openings for boxes.
- C. Low Voltage: Recessed (1/4" maximum) outlet boxes in masonry, concrete or tile construction shall be masonry type, minimum 4 11/16 inch square. Device covers shall be square-cut except rounded corner plaster rings are allowed in drywall applications. Angle cut plaster rings are not permitted. Coordinate masonry cutting to achieve neat openings for boxes.
- D. Provide knockout closures for unused openings.
- E. Support boxes independently of conduit except for cast boxes that are connected to two rigid metal conduits, both supported within 12 inches of box.
- F. Use multiple-gang boxes where more than one device are mounted together; do not use sectional boxes. Provide non-metallic barriers to separate wiring of different voltage systems.
- G. Install boxes in walls without damaging wall insulation.
- H. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.

DIVISION 26

SECTION 260533: RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

- I. Ceiling outlets shall be 4 inch octagon or 4 inch square, minimum 2-1/8 inch deep except that concrete boxes and plates will be approved where applicable. Position outlet boxes to locate luminaires as shown on reflected ceiling plans. All ceiling outlets shall be equipped with 3/8 inch fixture studs.
 - J. In inaccessible ceiling areas, position outlets and junction boxes within 6 inches of recessed luminaire, to be accessible through luminaire ceiling opening.
 - K. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.
 - L. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.
 - M. Provide cast ferroalloy or aluminum outlet boxes in exterior and wet locations.
 - N. Surface wall outlets shall be 4 inch square with raised covers for one and two gang requirements. For three gang or larger requirements, use gang boxes with non-overlapping covers.
- 3.9 FLOOR BOX INSTALLATION
- A. Set boxes level and flush with finish flooring material.
- 3.10 PULL AND JUNCTION BOX INSTALLATION
- A. Locate pull boxes and junction boxes above accessible ceilings, in unfinished areas or furnish and install approved access panels in non-accessible ceilings where boxes are installed.
 - B. Support pull and junction boxes independent of conduit.
- 3.11 SYSTEM IDENTIFICATION CONDUIT COLORS – BY BRANCH:
- | | | |
|----|--------------------------------|----------------------------------|
| 1. | Emergency – Life Safety Branch | Yellow |
| 2. | Emergency – Critical Branch | Blue |
| 3. | Emergency – Equipment Branch | Orange |
| 4. | Fire Alarm | Red |
| 5. | Normal Power and Lighting | Silver (or unpainted galvanized) |
| 6. | Nurse Call | White |
| 7. | IT/Data | Purple |
| 8. | Low Voltage Data, Thermostat | Green |
| 9. | UPS | Black |

END OF SECTION 260533

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes lighting for the following outdoor sports venues, specified primarily by illumination performance:
 - 1. Football fields.

1.3 DEFINITIONS

- A. CV: Coefficient of variation; a statistical measure of the weighted average of all relevant illumination values for the playing area, expressed as the ratio of the standard deviation for all illuminance values to the mean illuminance value.
- B. Delegated-Design Submittals: Documents, including drawings, calculations, and material and product specifications prepared as a responsibility of Contractor to obtain acceptance by Owner and authorities having jurisdiction.
- C. Horizontal Illuminance: Measurement in **foot-candles (lux)**, on a horizontal surface **36 inches (915 mm)** above ground, unless otherwise indicated.
- D. LLD: Lamp lumen depreciation.
- E. LLF: Light loss factor.
- F. Luminaire: Complete lighting fixture, including ballast housing if provided.
- G. Target Illuminance: Average maintained illuminance level, calculated by multiplying initial illuminance by LLF.
- H. UG: Uniformity gradient; the rate of change of illuminance on the playing field, expressed as a ratio between the illuminances of adjacent measuring points on a uniform grid.
- I. Vertical Illuminance: Measurement in **foot-candles (lux)**, in **[four]** directions on a vertical surface, at an elevation coinciding with plane height of horizontal measurements.

1.4 PERFORMANCE REQUIREMENTS

- A. Facility Type: **[Sports club]**.
- B. Illumination Criteria: Comply with criteria in IESNA RP-6 for the following:

1. Minimum average maintained illuminance level for each lighted area for each sports venue and for the indicated class of play.
 2. CV and maximum-to-minimum uniformity ratios for each lighted area equal to or less than those listed in IESNA RP-6 for the indicated class of play.
 3. UG levels within each lighted area and between adjacent lighted areas equal to or less than those listed in IESNA RP-6 for the indicated speed of sport.
- C. Illumination Calculations: Computer-analyzed point method complying with IESNA RP-6 to optimize selection, location, and aiming of luminaires.
1. Grid Pattern Dimensions: For playing areas of each sport and areas of concern for spill-light control, correlate and reference calculated parameters to the grid areas and intersection points of the indicated grid pattern.
 2. Spill-Light Control: Minimize spill light for each playing area on adjacent and nearby areas.
 - a. Prevent light trespass on properties near Project as defined by authorities having jurisdiction.
 - b. For areas indicated on Drawings as "spill-light critical," limit the level of illuminance directed into the area from any luminaire or group of luminaires, and measured **36 inches (915 mm)** above grade to the following:
 - 1) Maximum Horizontal Illuminance: [**0.5 fc (5.4 lux)**].
 - 2) Maximum Vertical Illuminance from the Direction of the Greatest Contribution of Light: [**2.0 fc (21.5 lux)**].
 - c. Calculate the horizontal and vertical illuminance due to spill light for points spaced [**20 feet (6 m)**] apart in areas indicated on Drawings as "spill-light critical," to ensure that design meets the above limits.
 3. Use a field factor of [**15**] percent according to IESNA RP-6, in establishing initial illuminance.
 4. Luminaire Mounting Height: Comply with recommendations in IESNA RP-6[, **with consideration for requirements to minimize spill light and glare**].
- D. Soccer Fields:
1. IESNA RP-6, Class of Play: [**II**].
 2. Speed of Sport: [**Fast**].
 3. Grid Pattern Dimensions: **30 by 30 feet (9 by 9 m)**.
- E. Electric Power Distribution Requirements:
1. Electric Power: [**208**] V, 3 phase.
 - a. Include roughing-in of service indicated for nonsports improvements on the Project site.
 - b. Balance load between phases. Install wiring to balance three phases at each support structure.

- c. Include required overcurrent protective devices and individual lighting control for each sports field or venue.
- d. Include indicated feeder capacity and panelboard provisions for future lighted sports field construction.

1.5 SUBMITTALS

A. Product Data: For each type of lighting product; include the following:

1. Lamp life, output, and energy-efficiency data. Energy data shall comply with IESNA LM-47.
2. Photometric data based on laboratory tests of each luminaire type, complete with lamps, ballasts, and accessories.
 - a. Photometric data shall be certified by a qualified independent testing agency.
 - b. Photometric data shall be certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.

B. Delegated-Design Submittals: The following documents, signed and sealed by a qualified professional engineer:

1. Drawings and specifications for construction of lighting system.
2. Manufacturer's determination of LLF used in design calculations.
3. Structural analysis data and calculations used for pole selection.
4. Foundation design shall be provided by the installer. Foundation design shall be based on site specific soil investigation and analysis.
 - a. Manufacturer Seismic Qualification Certification: Submit certification that sports lighting components and their mounting and anchorage provisions are designed to remain in place without separation of any parts when subjected to the seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems" Include the following:
 - 1) Basis for Certification: Indicate whether withstand certifications are based on actual test of assembled components or on calculation.
 - 2) Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
 - b. Manufacturer Wind-Load Strength Certification: Submit certification that selected total support system, including poles, complies with AASHTO LTS-4 for location of Project.
5. Design calculations for the following:
 - a. Target illuminance.
 - b. Point calculations of horizontal and vertical illuminance, CV, and UG at minimum grid size and area.

- c. Point calculations of horizontal and vertical illuminance in indicated areas of concern for spill light.
 - d. Calculations of source intensity of luminaires observed at eye level from indicated properties nearby the playing fields.
 - e. Short-circuit current calculations for rating of panelboards.
 - f. Total connected and estimated peak-demand electrical load, in kilowatts, of lighting system.
 - g. Capacity of **[feeder]** required to supply the lighting system.
6. Wiring requirements, including required conductors and cables and wiring methods.
- C. Manufacturer Certificates: Signed by manufacturers certifying that support structures, including brackets, arms, appurtenances, bases, anchorages, and foundations, comply with requirements.
- D. Qualification Data: For **[Installer]** **[manufacturer]** **[luminaire photometric data testing laboratory]** **[and]** **[field testing agency]**.
- E. Field quality-control test reports.
- F. Operation and Maintenance Data: For sports lighting system components to include in emergency, operation, and maintenance manuals.
- G. Warranty: Special warranty specified in this Section.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer. a service center capable of providing training, parts, and emergency maintenance repairs.
1. Manufacturer's responsibilities include fabricating sports lighting and providing professional engineering services needed to assume engineering responsibility.
 2. Engineering Responsibility: Preparation of delegated-design submittals and comprehensive engineering analysis by a qualified professional engineer.
- C. Luminaire Photometric Data Testing Laboratory: Provided by manufacturers' laboratories that are accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products.
- D. Luminaire Photometric Data Testing Laboratory: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7.
- E. Field Testing Agency Qualifications: An independent testing agency that is accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting

Products, or an NRTL as defined by OSHA in 29 CFR 1910.7, with the experience and capability to conduct field testing according to IESNA LM-5.

- F. 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.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of luminaires, lamps, and luminaire alignment products and to correct misalignment that occurs subsequent to successful acceptance tests. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, and unauthorized repairs and alterations from special warranty coverage.
 - 1. Luminaire Warranty: Luminaire and luminaire assembly (excluding fuses and lamps) shall be free from defects in materials and workmanship for a period of [ten] years from date of date of acceptance.
 - 2. Lamp Warranty:
 - a. Replace lamps and fuses that fail within [12] months from date of owner acceptance.
 - b. Provide replacement lamps that fail within the second [12] months from date of owner acceptance.
 - 3. Alignment Warranty: Accuracy of alignment of luminaires shall remain within specified illuminance uniformity ratios for a period of [ten] years from date of successful completion of acceptance tests.
 - a. Realign luminaires that become misaligned during the warranty period.
 - b. Replace alignment products that fail within the warranty period.
 - c. Verify successful realignment of luminaires by retesting as specified in Part 3 "Field Quality Control" Article.

PART 2 - PRODUCTS

2.1 LUMINAIRES, LAMPS, AND BALLASTS

- A. Luminaires: Listed and labeled, by an NRTL acceptable to authorities having jurisdiction, for compliance with UL 1598 for installation in wet locations.
 - 1. Doors, Frames, and Other Internal Access: Smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without using tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent their accidental falling during relamping and when secured in operating position. Door shall be removable for cleaning or replacing lens.
 - 2. Exposed Hardware: Stainless-steel latches, fasteners, and hinges.

3. Spill-Light Control Devices: Internal louvers and external baffles furnished by manufacturer and designed for secure attachment to specific luminaire.

2.2 SUPPORT STRUCTURES

- A. Support-Structure Wind-Load Strength: Poles and other support structures, brackets, arms, appurtenances, bases, anchorages, and foundations shall comply with AASHTO LTS-4 and shall be certified by manufacturers to withstand steady winds up to [**100 mph (160 km/h)**] with a gust factor of 1.3 without permanent deflection or whipping. Shall comply with 2018 NCBC (Chapter 16)
- B. Support-Structure Seismic Strength: Poles or other support structures, brackets, arms, appurtenances, base, anchorage, and foundation shall be designed to prevent separation of components or fracture of poles, luminaire supports, or pole foundations during a seismic event. Shall comply with 2018 NCBC (Chapter 16)
- C. Mountings, Fasteners, and Appurtenances:
 1. Corrosion resistant, compatible with support components, and shall not cause galvanic action at contact points.
 - a. Steel Components: Hot-dip galvanized after fabrication, complying with ASTM A 123/A 123M.
 - b. Mounting Hardware Fasteners: Hot-dip galvanized, complying with ASTM A 153/A 153M.

2.3 POWER DISTRIBUTION

- A. Wiring Method for Feeders, Subfeeders, Branch Circuits, and Control Wiring: Underground nonmetallic raceway; No. 10 AWG minimum conductor size for power wiring.
- B. Electrical Enclosures Exposed to Weather: NEMA 250, Type [**3R**] with hinged doors fitted with padlock hasps.

2.4 SURGE PROTECTION

- A. Surge Protection: Comply with requirements in Division 26 Section "Transient-Voltage Suppression for Low-Voltage Electrical Power Circuits" and include surge suppressors with the following requirements:
 1. Panelboard type.
 2. Nonmodular, with LED indicator lights.
 3. Peak Single-Impulse Surge Current Rating: 65 kA per phase.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use web fabric slings (not chain or cable) to raise and set structural members.
- B. Install poles and other structural units level, plumb, and square.
- C. Install lamps in each luminaire and fasten luminaire to structural supports.
 - 1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.
- D. Baffles and Louvers for Spill-Light Correction: Install on luminaires with fasteners provided by manufacturer. Install and adjust to correct out-of-limit spill-light[**and glare**] measurements.

3.2 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field quality-control tests, inspections, and analysis according to IESNA RP-6 and IESNA LM-5, where applicable, and prepare reports.
- B. Testing Agency: Engage a qualified independent testing and inspecting agency to perform field quality-control tests, inspections, and analysis according to IESNA RP-6 and IESNA LM-5, where applicable, and prepare reports.
- C. Perform the following field quality-control tests, inspections, and analysis according to IESNA RP-6 and IESNA LM-5, where applicable, and prepare test reports:
 - 1. After installing sports lighting system and after electrical circuits have been energized, perform proof-of-performance field measurements and analysis for compliance with requirements.
 - 2. Make field measurements at established test points in areas of concern for spill light and glare.
 - 3. Perform analysis to demonstrate correlation of field measurements with specified illumination quality and quantity values and corresponding computer-generated values that were submitted with engineered design documents, and submit a report of the analysis. For computer-generated values, use manufacturer's lamp lumens that are adjusted to lamp age at time of field testing.
- D. Correction of Illumination Deficiencies for Playing Areas: Make corrections to illumination quality or quantity measured in field quality-control tests that vary from specified illumination criteria by plus or minus 10 percent or more; add or replace luminaires, or change mounting height, revise aiming, or install louvers, shields, or baffles. If luminaires are added or mounting height is changed, revise aiming and recalculate and modify or replace support structures, if

indicated. Retest as specified above after repairs, adjustments, or replacements are made. Report results in writing.

- E. Correction of Excessive Illumination in Spill-Light-Critical Areas: If measurements indicate that specified limits for spill light are exceeded, make corrections to illumination quantity measured in field quality-control tests that reduce levels to within specified maximum values. Replace luminaires, or change mounting heights, revise aiming, or install louvers, shields, or baffles. If mounting height is changed, revise aiming and recalculate and modify or replace support structures, if indicated. Retest as specified above after repairs, adjustments, or replacements are made. Report results in writing.

3.3 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sports lighting. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 265668

FORM OF PROPOSAL

Smoky Mountain High School Football Lighting

Contract: prime

Jackson County, NC

Bidder: _____

Date: _____

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. The bidder further declares that he has examined the site of the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed.

The Bidder proposes and agrees if this proposal is accepted to contract with the Jackson County, Sylva, NC, in the form of contract specified below, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of Smoky Mountain High School – Football Lighting in full in complete accordance with the plans, specifications and contract documents, to the full and entire satisfaction of Jackson County, North Carolina with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and the contract documents, for the sum of:

SINGLE PRIME CONTRACT:

Base Bid:

_____ Dollars(\$)

Electrical Subcontractor:

_____ Lic _____

GS143-128(d) requires all single prime bidders to identify their subcontractors for the above subdivisions of work. A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor.

ELECTRICAL CONTRACT:

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

Proposal Signature Page

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

Respectfully submitted this day of _____

(Name of firm or corporation making bid)

WITNESS:

(Proprietorship or Partnership)

By: _____
Signature

Name: _____
Print or type

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

Address _____

ATTEST:

By: _____

License No. _____

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

Federal I.D. No. _____

(CORPORATE SEAL)

Addendum received and used in computing bid:

Addendum No. 1 ___ Addendum No. 2 ___ Addendum No. 3 ___ Addendum No. 4 ___

FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS THAT

_____ as
principal, and _____, as surety, who is duly licensed to act as
surety in North Carolina, are held and firmly bound unto the State of North Carolina* through

_____ as obligee, in the penal sum of
_____ DOLLARS, lawful money of the United States of
America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors,
administrators, successors and assigns, jointly and severally, firmly by these presents.

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

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

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

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

FORM OF CONSTRUCTION CONTRACT

THIS AGREEMENT, made the ___ day of _____ in the year of 2026 by and between _____, hereinafter called the Party of the First Part and JACKSON COUNTY NORTH CAROLINA, hereinafter called the Party of the Second Part.

WITNESSETH:

That the Party of the First Part and the Party of the Second Part for the consideration herein named agree as follows:

- 1. Scope of Work: The Party of the First Part shall furnish and deliver all of the materials, and perform all of the work in the manner and form as provided by the following enumerated plans, specifications and documents, which are attached hereto and made a part thereof as if fully contained herein: advertisement; Instructions to Bidders; General Conditions; Supplementary General Conditions; specifications; accepted proposal; contract; power of attorney; workmen's compensation; public liability; property damage and builder's risk insurance certificates; and drawings, titled:

Smoky Mountain High School – Sylva – Football Lighting

Consisting of the following sheets:

E001, E100, E101

Consisting of the following specifications: **Electrical**

Dated: _____ and the following addenda:

Addendum No	<u> 1 </u>	Dated:	_____	Addendum No.	_____	Dated:	_____
Addendum No	<u> 2 </u>	Dated:	_____	Addendum No.	_____	Dated:	_____
Addendum No	<u> 3 </u>	Dated:	_____	Addendum No.	_____	Dated:	_____
Addendum No	<u> 4 </u>	Dated:	_____	Addendum No.	_____	Dated:	_____

2. That the Party of the First Part shall commence work to be performed under this agreement on a date to be specified in a written order of the Party of the Second Part and shall fully complete all work hereunder within 180 consecutive calendar days from said date. For each day in excess thereof, liquidated damages shall be as stated in Supplementary General Conditions. The Party of the First Part, as one of the considerations for the awarding of this contract, shall furnish to the Party of the Second Part a construction schedule setting forth planned progress of the project broken down by the various divisions or part of the work and by calendar days. If the Party of the First Part fails to begin the work under the contract within the time specified, or the progress of the work is not maintained on schedule, or the work is not completed within the time above specified, or fails to perform the work with sufficient workmen and equipment or with sufficient materials to ensure the prompt completion of said work, or shall perform the work unsuitably or shall discontinue the prosecution of the work, or if the Party of the First Part shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of forty-eight (48) hours, or shall make an assignment for the benefit of creditors, or for any other cause whatsoever shall not carry on the work in an acceptable manner, the Party of the Second Part may give notice in writing, sent by certified mail, return receipt requested, to the Party of the First Part and his surety of such delay, neglect or default, specifying the same, and if the Party of the First Part within a period of fifteen (15) days after such notice shall not proceed in accordance therewith, then the Party of the Second Part shall, declare this contract in default, and, thereupon, the surety shall promptly take over the work and complete the performance of

this contract in the manner and within the time frame specified. In the event the surety shall fail to take over the work to be done under this contract within fifteen (15) days after being so notified and notify the Party of the Second Part in writing, sent by certified mail, return receipt requested, that he is taking the same over and stating that he will diligently pursue and complete the same, the Party of the Second Part shall have full power and authority, without violating the contract, to take the prosecution of the work out of the hands of said Party of the First Part, to appropriate or use any or all contract materials and equipment on the grounds as may be suitable and acceptable and may enter into an agreement, either by public letting or negotiation, for the completion of said contract according to the terms and provisions thereof or use such other methods as in his opinion shall be required for the completion of said contract in an acceptable manner. All costs and charges incurred by the Party of the Second Part, together with the costs of completing the work under contract, shall be deducted from any monies due or which may become due said Party of the First Part and surety. In case the expense so incurred by the Party of the Second Part shall be less than the sum which would have been payable under the contract, if it had been completed by said Party of the First Part, then the said Party of the First Part and surety shall be entitled to receive the difference, but in case such expense shall exceed the sum which would have been payable under the contract, then the Party of the First Part and the surety shall be liable and shall pay to the Party of the Second Part the amount of said excess.

3. The Party of the Second Part hereby agrees to pay to the Party of the First Part for the faithful performance of this agreement, subject to additions and deductions as provided in the specifications or proposal, in lawful money of the United States as follows:

_____ (\$ _____).

Summary of Contract Award: **Electrical, and General Construction as described in Contract Documents.**

4. On or before the 20th day of each calendar month, the Party of the Second Part shall make payments to the Party of the First Part on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the First Party, less five percent (5%) of the amount of such estimate which is to be retained by the Second Party until all work has been performed strictly in accordance with this agreement and until such work has been accepted by the Second Party. The Second Party may elect to waive retainage requirements after 50 percent of the work has been satisfactorily completed on schedule as referred to in Article 31 of the General Conditions.

5. Upon submission by the First Party of evidence satisfactory to the Second Party that all payrolls, material bills and other costs incurred by the First Party in connection with the construction of the work have been paid in full, final payment on account of this agreement shall be made within thirty (30) days after the completion by the First Party of all work covered by this agreement and the acceptance of such work by the Second Party.

6. It is further mutually agreed between the parties hereto that if at any time after the execution of this agreement and the surety bonds hereto attached for its faithful performance, the Second Party shall deem the surety or sureties upon such bonds to be unsatisfactory, or if, for any reason, such bonds cease to be adequate to cover the performance of the work, the First Party shall, at its expense, within five (5) days after the receipt of notice from the Second Party so to do, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the Second Party. In such event no further payment to the First Party shall be deemed to be due under this agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the Second Party.

IN WITNESS WHEREOF, the Parties hereto have executed this agreement on the day and date first above written in 3 (three) counterparts, each of which shall without proof or accounting for other counterparts, be deemed an original contract.

Witness:

_____ Contractor: (Trade or Corporate Name)

_____ By: _____
(Proprietorship or Partnership)

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

Attest: (Corporation)

By: _____

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

(CORPORATE SEAL)

Jackson County, North Carolina:

By: _____

Title: _____

Date: _____

Witness:

By: _____

Title: _____

Date: _____

FORM OF PERFORMANCE BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal (Contractor) _____

Name of Surety: _____

Jackson County, North Carolina

Name of Contracting Body: _____

Amount of Bond: _____

Project **Smoky Mountain High School - Sylva – Football Lighting**

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

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

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

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

Executed in _____ counterparts.

Witness: _____
Contractor: (Trade or Corporate Name)

By: _____
(Proprietorship or Partnership)

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

By: _____

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

(Corporate Seal)

(Surety Company)

Witness: By: _____

Title: _____
(Attorney in Fact)

Countersigned:

(Surety Corporate Seal)

(N.C. Licensed Resident Agent)

Name and Address-Surety Agency

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

FORM OF PAYMENT BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal
(Contractor) _____

Name of Surety: _____

Name of Contracting Body: Jackson County, North Carolina

Amount of Bond: _____

Project **Smoky Mountain High School - Sylva – Football lighting**

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

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

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

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

Executed in _____ counterparts.

Witness: _____
Contractor: (Trade or Corporate Name)

By: _____
(Proprietorship or Partnership)

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

By: _____

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

(Corporate Seal)

(Surety Company)

Witness: By: _____

Title: _____
(Attorney in Fact)

Countersigned:

(Surety Corporate Seal)

(N.C. Licensed Resident Agent)

Name and Address-Surety Agency

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

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

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

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

County of _____

(Name of Bidder)

Affidavit of _____

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

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

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

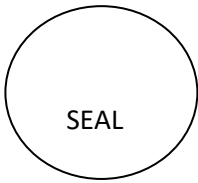
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure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

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

**State of North Carolina
Perform Contract**

**--AFFIDAVIT B-- Intent to
with Own Workforce.**

County of _____

Affidavit of _____
(Name of Bidder)

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

contract.
(Name of Project)

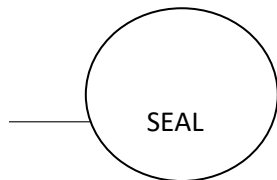
In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

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

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

Date: _____ Name of Authorized Officer: _____

Signature: _____



Title: _____

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

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

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

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

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

(Project Name)

Project ID# _____ Amount of Bid \$ _____

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

Attach additional sheets if required

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

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

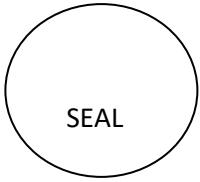
Female (F) Socially and Economically Disadvantaged (D)

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

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

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

Date: _____ Name of Authorized Officer: _____



Signature: _____

Title: _____

State of _____, County of _____

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

Notary Public _____

My commission expires _____

**State of North Carolina
Faith Efforts**

AFFIDAVIT D - Good

County of _____

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

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

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

(Project Name)

Project ID# _____ Amount of Bid \$ _____

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

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

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

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

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

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-

bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay

agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

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

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms

for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to

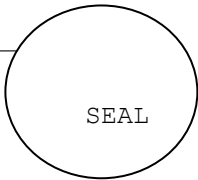
fulfill this commitment may constitute a breach of the contract.

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

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____



ANTI-COLLUSION AFFIDAVIT

JACKSON COUNTY
NORTH CAROLINA

_____, being first duly sworn deposes and says that:

1. (S)he is the _____ of _____ (the company submitting the attached proposal);
2. (S)he 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 collusive or sham;
4. Neither the said bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in 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 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 to secure through collusion, conspiracy, connivance or unlawful agreement any advantage against the County of Jackson, 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 contained 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 affidavit.

_____(SEAL)

_____(TITLE)

Subscribed and sworn to before me, this

_____ day of _____, 20____.

Notary Public

My Commission expires

Jackson County
399 Grindstaff Rd
Sylva, NC 28779



E-VERIFY AFFIDAVIT

The State of North Carolina recently passed HB 786 (S.L. 2013-418) enacting NCGS 160A-20.1(b) which prohibits governmental units from doing business with contractors/companies who do not comply with E-Verify. The law also applies to a contractor's subcontractors.

Article 2 of Chapter 64 of the NCGS requires an employer that transacts business in the State of North Carolina and employs 25 or more employees in the State of North Carolina to verify the work authorization of its employees through the federal E-Verify program.

In accordance with the NCGS, Jackson County requires all contractors/companies who do business with Jackson County to comply with the E-Verify requirements as evidenced by submission of this affidavit for formal bids.

I, _____ (the individual attesting below), being duly authorized by and on behalf of
_____ (the entity bidding on project/contracting with county, hereinafter "Employer") after first being duly sworn hereby swears or affirms as follows:

1. Employer 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 NCGS §64-25(5).
2. Employer understands that **Employers Must Use E-Verify**. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with NCGS§64-26(a).
3. Employer is a person, business entity, or other organization that transacts business in the State of North Carolina and that employs 25 or more employees in North Carolina. (mark Yes or No)
a. YES _____, or b. NO _____
4. Employer's subcontractors comply with E-Verify, and Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This ___ day of _____, 20__.

Signature of Affiant
Print or Type Name: _____

State of _____ County of _____
Signed and sworn to (or affirmed) before me, this the _____
day of _____, 20__.
My Commission Expires:

Notary Public

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

Jackson County
399 Grindstaff Rd
Sylva, NC 28779



IRAN
DIVESTMENT ACT
CERTIFICATION

Name of Company: _____

**IRAN DIVESTMENT ACT CERTIFICATION
REQUIRED BY N.C.G.S. 143C-6A-5(a)**

As of the date listed below, the entity listed above is not listed on the Final Divestment List created by the State Treasurer pursuant to N.C.G.S. 143-6A-4.

The undersigned hereby certifies that he or she is authorized by the entity listed above to make the foregoing statement.

Signature Date

Printed Name Title