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ARCHITECTS
771 Broad Street, Suite 200 • Augusta, GA
706.722.7488

Richmond County Board of Education
Josey High School Demolition
B-27-006-3756

Project Manual
DA Project #: 25054
April 28, 2026

issue for bid

PROJECT DIRECTORY

Owner:

Richmond County Board of Education
Administrative Offices
864 Broad Street
Augusta, GA 30901

(706) 826-1010

Program Manager:

GMK Associates, Inc.
864 Broad Street
Augusta, GA 30901

(706) 826-1127
(706) 826-4615 Fax

Architect:

Dickinson Architects
771 Broad Street, Suite 200
Augusta, GA 30901

(706) 722-7488

Consulting Engineers:

Electrical Engineer
Electrical Design Consultants
1201 Broad Street, Suite 1A
Augusta, GA 30901

(706) 724-3551

Mechanical Engineer
PFA Engineering Inc
1201 Broad Street, Suite 3A
Augusta, GA 30901

(706) 724-3959

Civil Engineer
Nandina, Inc.
3800 Park Lane
Martinez, GA 30907

(706) 395-5716

SECTION 00 0110
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COUNTY BOARD OF EDUCATION OF RICHMOND COUNTY
INVITATION TO BID

Sealed proposals from General Contractors will be received for the Central Office Board Room Renovation by the County Board of Education of Richmond County at the address below until **3:00 p.m.** local time, **June 2, 2026**, at which time the bids will be publicly opened and read. No extension of the bidding period will be made.

A Pre-Bid Conference will be held on May 12**, @ 2:00 pm** local time on the Josey High School site located @ 1701 15th Street, Augusta, GA, 30901.

Drawings and project manual on this work may be examined at the Department of Maintenance and Facilities, Richmond County Board of Education, 2956 Mike Padgett Highway, Augusta, Georgia 30906. Tel: (706) 737-7189

ELECTRONIC COPIES OF THE BIDDING DOCUMENTS MAY BE OBTAINED FREE OF CHARGE FROM THE ARCHITECT / ENGINEER UPON REQUEST FROM A LEGITIMATE BIDDING GENERAL CONTRACTOR. REQUESTS MAY BE MADE BY PHONE OR E-MAIL BY CONTACTING NICK DICKINSON (NDJR@DICKINSONARCHITECTS.COM. NO ELECTRONIC COPIES WILL BE RELEASED TO SUBCONTRACTORS. ONLY REGISTERED PLAN HOLDERS REQUESTING THE DOCUMENTS FROM THE ARCHITECT / ENGINEER WILL BE NOTIFIED OF THE PUBLISHED ADDENDA.

If desired, printed bidding documents may also be obtained at the **office of Dickinson Architects, 771 Broad Street, Suite 200, Augusta, GA 30901, 706-722-7488.** Applications for documents together with a refundable deposit of **$200 (payable to Dickinson Architects)** per set should be filed promptly with the Architect / Engineer. Bidding material will be forwarded (shipping charges collect) as soon as possible. The full amount of deposit for one set will be refunded to each prime contractor who submits a bona fide bid upon return of such set in good condition within 10 days after date of opening bids. All other deposits will be refunded with deductions approximating cost of reproduction of documents upon return of same in good condition within 10 days after date of opening bid.

Contract, if awarded, will be on a lump sum basis. No bid may be withdrawn for a period of 35 days after time has been called on the date of opening.

Bid must be accompanied by a bid bond in an amount not less than 5% of the base bid. Personal checks, certified checks, letters of credit, etc., are not acceptable. The successful bidder will be required to furnish performance and payment bonds in an amount equal to 100% of the contract price.

The Owner reserves the right to reject any and all bids and to waive technicalities & informalities.

To promote local participation, a database of Subcontractors, Suppliers, and Vendors has been developed by the Program Manager, GMK Associates. Contact Jeanine Usry with GMK Associates at (706) 826 -1127 for the location to review and obtain this database.

Bids shall be submitted and addressed to:

Dr. Malinda Cobb
County Board of Education of Richmond County
Administrative Office
864 Broad Street
Augusta, Georgia 30901
c/o: Mr. Bobby Smith, CPA

SECTION B - PROPOSAL FORM

_____ DATE _____

INSERT NAME AND ADDRESS

RE: B-25-006-3756
Josey High School Demolition
864 Broad Street
Augusta, GA 30901

Ladies and Gentlemen:

B-01 Having carefully examined the specifications entitled, "Project No. B-25-006-3756, Josey High School Demolition", and the drawings similarly entitled, numbered, all dated April 28, 2026 and addendum (a) Nos. _____, as well as the premises and conditions affecting the work, the undersigned proposes to furnish all services, labor and materials called for by them for the entire work, in accordance with said documents for the sum of:

_____

_____DOLLARS ($_____)

which sum is hereafter called the "BASE BID"

B-02. The undersigned further proposes that should any of the following alternates or unit prices be accepted and is incorporated in the contract, the Base Bid may be altered if elected by the Owner as follows:

B-03 a) If rock, boulders, weathered shale or other unsuitable materials as defined in the General Conditions is encountered by the contractor during the general overall grading operation , the Owner will pay the contractor $_____ per cubic yard for the removal and disposal of said materials off site.

b) If rock, boulders, weathered shale or other unsuitable materials as defined in the General Conditions is encountered by the contractor during the trench excavation, the Owner will pay the contractor $_____ per cubic yard for the removal and disposal of said materials off site.

c) The quantity of rock, boulders, weathered shale or other unsuitable materials as defined in the General Conditions will be as computed by the architect on the basis of measurements taken by the architect—excavation of said unsuitable materials is to be carried out only when authorized by the architect.

d) Rock payment lines are limited to the following:
1. Two feet outside concrete work for which forms are required, except footings.
2. One foot outside perimeter of footings
3. In pipe trenches, 6 inches below invert elevation of pipe and 2 feet wider than inside diameter of pipe, but not less than 3 feet minimum trench width.
4. Outside dimensions of concrete work where no forms are required.
5. Under slabs on grade, 6 inches below bottom of concrete slab.

B-04 For and in consideration of the sum of $1.00, the receipt of which is hereby acknowledged, the undersigned agrees that this proposal may not be revoked or withdrawn after the time set for the opening of bids but shall remain open for acceptance for a period of thirty-five (35) days following such time

B-05 In case he be notified in writing by mail, email, or delivery of the acceptance of this proposal within thirty-five (35) days after the time set for the opening of bids, the undersigned agrees to execute within ten (10) days a contract (Form of Agreement Between Contractor and Owner, Form No. 418) for the work for the above stated compensation and at the same time to furnish and deliver to the Owner a performance bond and a payment bond in accordance with the forms shown in Article E-30 of the General Conditions of the Contract, both in an amount equal to 100% of the contract sum. Contractor shall also provide the required certificates of insurance (in accordance with Article E-27 of the General Conditions). Contractor will also provide a list of subcontractors, noting their business trade, estimated value of their work and business classification (MBE/WBE) for the Local Participation Report to the Board.

B-06 The undersigned agrees to commence actual physical work on the site with an equal force and equipment within ten (10) days after the notice-to proceed by the owner and to complete the work as prescribed below: All work required to separate the Marion Barnes Center and the Josey Kitchen/Cafeteria from the main Josey High School structure shall be completed by July 24, 2026. This shall include all utility work required to make these buildings fully operational.
Completion of the remaining demolition and site stabilization shall be complete by October 19, 2026.

B-07 Enclosed herewith is a bid bond in the amount of:
_____Dollars ($_____)
being not less than 5% of the Base Bid.

The undersigned agrees that the above stated amount is the proper measure of liquidated damages which the Owner will sustain by the failure of the undersigned to execute the contract and to furnish the performance bond and the payment bond in case this proposal is accepted and further agrees to the following:

B-08 If this proposal is accepted within thirty-five (35) days after the date set for the opening of bids and undersigned fails to execute the contract within ten (10) days after written notification of such acceptance or if he fails to furnish both a performance bond and a payment bond, the obligation of the bid bond will remain in full force and effect and the money payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure; otherwise the obligation of the bond will be null and void.

B-09 The following subcontractors are listed for review by the Owner and Architect.

1. Plumbing_____
2. Mechanical_____
3. Electrical_____
4. Roofing_____
5. Sitework_____

B-10 The bidder submits the following statement of bidder's qualifications: (see next page)

B-11 The bidder submits the attached E-Verify Contractor Affidavit.

B-12 The bidder submits the attached Sex Offender Acknowledgement Form

Certified Checks Not Acceptable

STATEMENT OF BIDDER'S QUALIFICATIONS

To accompany bids submitted for
Augusta, Georgia

Name of Bidder _____

Business Address _____

Phone Number _____ Fax Number _____

When Organized _____

Where Incorporated _____

Type of Business: General Contractor _____

Subcontractor _____

Other _____

Credit Available for this Contract $_____ *____

Contracts now in Hand $ _____ *____

* Within ten calendar days after bid date and prior to the award of the construction contract the contractor must furnish Program Manager/Owner a current audited financial statement.

Plan of Organization (Proprietorship, Partnership, Corporation)

_____

The Bidder has never refused to sign a contract at the original bid.

(True _____) (False _____)

The Bidder has never declared in default on a contract.

(True _____) (False _____)

By signing this document, I (the bidder) certify that construction, under this company's name, is my primary means of business and employment.

Remarks: _____

_____

(The above statements must be subscribed and sworn to before a Notary Public).

Date _____

Firm Name _____

By _____

Title _____

_____
(Notary Public)

Respectfully submitted,

Name _____

Address _____

_____

By _____

Title _____

The full names and addresses of persons and firms interested in the foregoing bids as principals are as follows:

_____

_____

_____

The legal name of the bidder is:

_____

Contractor Affidavit under O.C.G.A. § 13-10-91 (b) (1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of Richmond County Board of Education has registered with, is authorized to use and uses the federal work authorization to use and uses federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91 (b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Work Authorization User Identification Number

_____
Date of Authorization

_____
Name of Contractor

_____
Name of Project

Richmond County Board of Education
Name of Public Employer

I hereby declare under penalty that the foregoing is true and correct.

Executed on _____, _____ 20____ in _____(city), _____ (state).

_____
Signature of Authorized Officer or Agent

_____
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME
ON THIS THE __ DAY OF _____, 20_____.

_____
NOTARY PUBLIC

My Commission Expires:

_____

Sex Offender Acknowledgement Form

Read, sign and return this form to the Richmond County Board of Education

The Contractor (or Vendor) shall not knowingly send any employee, agent or subcontractor personnel who is a registered sex offender or who has been convicted of sexual abuse to any school building or school property when students are attending school or a school related activity.

The Contractor (or Vendor) shall make periodic criminal history record inquiries as authorized by O.C.G.A. §35-3-34, as now written, or here-after amended; or allowed by all or any other laws allowing such inquiry, to identify these persons who have been convicted of sexual abuse or any other act which would require such person to be entered into a national or state sexual offender registry.

For the purpose of this policy, the term periodic shall mean that the criminal history record inquiries shall be made current upon the awarding of a successful bid on contract and checked no less than annually during the duration of the contract.

Upon notification and acceptance of the bid, the Contractor (or Vendor) shall certify to the Richmond County Board of Education that periodic criminal history record checks are made by the company for all employees and that to the best of the Contractor's (or Vendor) knowledge it has no employee or agent who has been convicted of a sex offense or who is a registered sex offender, who will be assigned to any school building or school property while students are attending school or a school related activity.

I have read and understand the above Richmond County Board of Education Policy regarding my or my company's obligation as a contractor (or vendor). I further acknowledge that the failure to comply with the requirements to identify a sex offender, to comply with any part of this policy, to assign a sex offender to any school building or school property while students are attending school or a school related activity will constitute a breach of the contract.

_____ _____
Contractor (or Vendor) signature Date signed

_____ _____
Witness signature Date signed

SECTION C

INSTRUCTIONS TO BIDDERS

C-01. Basis of Contract. - See invitation to bid and proposal form. (See also Article E-45)

C-02. Bid Security. - See invitation to bid and proposal form.

C-03. Interpretations. - No oral interpretation will be made to bidders as to the meaning of the drawings and specifications. Requests for interpretation of drawings and specifications must be made in writing to the architect not later than five (5) days prior to the date set for receipt of the proposals, and failure on the part of the successful bidder to do so shall not relieve him as contractor of the obligation to execute such work in accordance with a later interpretation by the architect. All interpretations made to bidders will be issued in the form of addenda to the plans and specifications and will be sent to all bidders. Such addenda are to be covered in the proposals, and in closing the contract they will become a part thereof. (See also Article E-45) It is the Program Manager/Owner's preference to have all addenda's distributed to all bidders at least three (3) working days prior to the bid date.

C-04. Proposals. - (a.) - Proposals will be opened and read as stated in the invitation to bid.

(b.) - All bids must be submitted on the same form as the specimen shown in Section B and must be signed. All blanks on the proposal form must be filled in. Three loose copies are furnished bidders for their use. Numbers shall be written in English words and in Arabic numerals, and the completed form shall be without interlineation, alteration or erasure. Failure to submit a proposal in the form requested or the inclusion of any condition, alternate, limitation or provision not called for will render the bid irregular and shall be considered sufficient cause for rejection of a bid. Failure to complete entries in all blanks in the proposal form shall be considered sufficient cause for rejection of a proposal.

(c.) - Proposals are to be addressed to the owner at the address and room number shown in the advertisement for bids and must be enclosed in an opaque, sealed envelope marked with the name and number of the job and identified with the words "Proposal for Construction". Bids are to reach the address designated in the invitation for bids not later than the hour and date named in the invitation for bids. After that time no bids may be received.

(d.) – Alternates:

(1) Deductive alternates may be used to reduce the base bid; if used, deductive alternates will be prioritized and exercised in numerical sequence as used in the bid documents.

(2) Additive alternates may be used; if used they may be exercised in any order.

(3) The Project shall be awarded by the base bid less any deductive alternate selected (if any); plus any Additive alternates selected (if any). To be clear, any deductive alternates and/or additive alternates selected will be used to determine the low bid.. (See Article E-47)

(e.) - Proposals together with the full bid security accompanying same may be withdrawn by bidders prior to the time set for official opening. After time has been called, no bid may be withdrawn for a period of thirty-five days after the TIME AND DATE of opening. Negligence or error on the part of any bidder in preparing his bid confers no right of withdrawal or modification of his bid after time has been called.

C-05. Examination of Site. - The bidder's attention is directed to Article E-15.

C-06. Contract Form and Bonds. - The bidder's attention is directed to Article B-05.

C-07. Award. - The owner reserves the right to reject any or all bids and to waive technicalities and informalities. (See also Article C-01)

C-08. - Surety and Insurance Companies. - The contract provides that the surety and insurance companies must be acceptable to the owner. To avoid inconvenience, any bidder or subcontractor should get in touch with the owner to determine whether the surety or insurance companies expected to be used on the work are acceptable to the owner. (See also Articles E-27 and E-30)

C-09. - Employment of Georgia Citizens and Use of Georgia Products. - Since the work provided for in this contract is to be performed in Georgia, it is the wish of the owner that materials and equipment manufactured or produced in Georgia shall be used in the work and that Georgia citizens shall be employed in the work at wages consistent with those being paid in the general area in which the work is to be performed. This desire on the part of the owner is not intended to restrict or limit competitive bidding or to increase the cost of the work; nor shall the fulfillment of this desire be asserted by the contractor as an excuse for any noncompliance or omission to fulfill any obligation under the contract.

IMPORTANT

C-10. Trade Names. - The attention of bidders and all other parties is called to the procedure under Article E-03 of general conditions for the submission of trade names, brand names, or names of manufacturers for approval which aforesaid procedure is used in place of what is commonly known as an "or equal" provision.

NOTES:

1. Before submitting a bid, each bidder shall examine the Drawings carefully, shall read the Specifications and all other Contract Documents, and shall visit the site of the Work. Each bidder shall fully inform himself prior to bidding as to existing conditions and limitations under which the Work is to be performed, and shall include in his bid a sum to cover the cost of items necessary to perform the work as set forth in the proposed Bidding Documents. The Bidding Documents have been prepared on the basis Of surveys and inspections of the site and physical conditions at the site. This, however does not relieve the Bidder of the necessity for fully informing himself as to the existing physical conditions. No allowance will be made to a bidder because of lack of such examination or knowledge. The submission of a bid will be considered as conclusive evidence that the bidder has made such examination.

2. Bidder has secured on-site measurements for quantities upon which Bidder's proposal is based and has observed all existing conditions and limitations.

3. Each bidder, when required, shall obtain a Contractor's license under the provisions of the Georgia Contractor's Licensing Law. Specialty Contractor's Licenses can be obtained for the various building trades and information regarding these licenses can be obtained from the Georgia Licensing Board for Contractors.

4. Attention is directed to the fact that these specifications include a set of Bid Forms. These are for the convenience of bidders and are not to be detached from the Specifications, or filled out, or executed. Separate copies of Bid Forms are furnished for that purpose, in triplicate, two to be submitted with the Bid and one to be retained by the bidder for his records. Architects instructs bidders to use this form and no other. Do not add to the form with any change.

. The Contractor, by signing the Contract, acknowledges that he is aware of and familiar with the contents and requirements of the following acts and executive orders:

1. High Voltage Act, Georgia Law 1960, pp181-183
2. Underground Gas Pipe Law- Georgia Law 1969, pp50-57
3. William Steiger Occupational Safety and Health Act of 1970
4. The non-discrimination clause contained in Section 202 Executive Order 11246 as amended by Executive Order 11375 related to Equal Employment Opportunity for all persons without regard to race, color, religion, sex, or national origin and the implementing rules and regulations described by the Secretary of Labor are incorporated.
5. The act entitled "State Employees and Officials- Trading with the "State", Georgia Laws, 1956,pp.et seq
6. Contractors must e-Verify their employees and all subcontractors in accordance with O.G.C. 13-10-91 and provide affidavits for themselves and subcontractors as required by Chapter 300-10-1 of the Georgia Department of Labor Code.

5. DUTY TO PROTECT: The Contractor (or Vendor) shall not knowingly send any employee, agent or subcontractor personnel who is a registered sex offender or who has been convicted of sexual abuse to any school building or school property when students are attending school or a school related activity. The Contractor (or Vendor) shall make periodic criminal history record inquiries as authorized by O.C.G.A. §35-3-34, as now written, or here-after amended; or allowed by all or any other laws allowing such inquiry, to identify these persons who have been convicted of sexual abuse or any other act which would require such person to be entered into a national or state sexual offender registry. For the purpose of this policy, the term periodic shall mean that the criminal history record inquiries shall be made current upon the awarding of a successful bid on contract and checked no less than annually during the duration of the contract. Sex Offender Acknowledgement Form is to be executed and included in the bid as provided in the SECTION B – Form of Proposal

6. In submitting a proposal, the bidder certifies that the provisions of the act entitled "State Employees and Officials- Trading with the State," Georgia Laws 1956, pp et seq. Have been complied with."

7. The drawings, Specifications and other documents furnished to bidders are the property of the Owner.

8. Return bidding documents to the address of the Architect as listed in the Directory. In returning bidding documents, include dated transmittal.

9. Each bidder shall carefully examine Drawing and Specifications and all Addenda or other revisions thereto and thoroughly familiarize himself with the detailed requirements thereof prior to submitting a proposal. If any bidder is in doubt as to the true meaning of any part of the Drawings, Specifications or other documents, or if any error, discrepancy, conflict or omission is noted, the bidder should immediately submit a written request for information to the Program Manager.

   The Program Manager will forward all such request to the Architect for clarification of the intent of the documents and/or correction of such error, discrepancy, conflict or omission and will notify all bidders by Addendum in cases where the extent of the work of the cost thereof will be appreciably affected. No allowance will be made after the bids are received for oversight by a bidder

10. Any explanations desired by bidder regarding the meaning or interpretation of the drawings and specifications should be requested in writing to the Architect.

11. "Oral explanations or instructions given before the award of the Contract will not be binding. Any interpretations made will be in the form of a Addendum to the Specifications or drawings and will be furnished to all bidders and its receipt by the bidder will be acknowledged on the form of proposal in the space provided."

12. The following products do not require further approval except for interface within the work:
    Products specified by reference to standard specifications such as ASTM and similar standards.

13. Bid Bonds will be returned to all except the three lowest bidders within ten days after formal opening of bids. The bid bonds of the three lowest bidders will be returned within 48 hours after Owner and Contractor have executed a Contract and the executed performance bond and payment bond has been approved by the Owner, or, if no award has been made within 60 days after the opening of bids, upon the demand of the bidder at anytime thereafter, so long as he has not been notified of the acceptance of this bid

14. It is strongly urged that all bidders deliver the bid to the location of the bid opening as indicated on the Invitation/Advertisement for Bids. Bidder is solely responsible for insuring delivery of bid to the proper location at the proper time. Delivery of bids which are mailed or otherwise transmitted to the Owner, Architect and Program Manager at a location other than the location of the bid opening indicated on the Invitation/Advertisement for Bids will not be guaranteed. Program Manager/Owner prefer bids to be hand delivered to place of bid. Bids faxed will not be accepted.

15. The owner reserves the right to accept or reject any and all bids when such rejection is in the interest of the Owner; to reject the bid of the bidder who has previously failed to perform or to complete on time Contracts of a similar nature; and to reject the bid of a bidder who is not, in the opinion of the Architect and Program Manager or Owner, in a position to perform the Contract. The

Owner reserves the right to reject any subcontractor who has previously failed to perform properly in the opinion of the Architect, Program Manager or the Owner.

16. The Owner will follow the State of Georgia guidelines when considering award of contracts. The Project shall be awarded by the base bid less any deductive alternate selected (if any); plus any Additive alternates selected (if any). To be clear, any deductive alternates and/or additive alternates selected will be used to determine the low bid.

17. Proposals for each contract will be accepted from bidders who are regularly engaged in the work they are bidding, which represents a significant portion of their total volume and who perform this work with men regularly employed on their payrolls. Before a bid is considered for award, the bidder may be requested by the Architect or Program Manager to submit a statement of facts in detail as to his previous experience in performing similar or comparable work and of his business and technical organization and financial resources and plant available to be used in contemplated work. The bidder may also be required to submit a statement of facts in detail on his proposed subcontractors as to their previous experience and past performance on performing similar work or comparable work .

18. Failure to furnish bonds in a form satisfactory to Owner shall subject bidder to loss of time from the allowable construction period equal to delay time in furnishing material. The Owner reserves the right to reject the qualifications of any bonding company.

19. The bidder to whom the Contract is awarded shall, within ten calendar days after notice of award and receipt of Agreement forms from the Owner, sign and deliver required copies to the Owner.

20. At or prior to delivery of the signed Agreement, the bidder to whom the Contract is awarded shall deliver to the Owner those Certificates of Insurance required by the Contract Documents. The successful bidder will not be permitted to occupy the site of the work or allowed on the property of the Owner until Certificates of Insurance has been approved and the written Notice to Proceed is issued. Failure to furnish policies or Certificates in a form satisfactory to Owner shall subject Bidder to loss of time from the allowable construction period equal to delay time in furnishing material.

21. Not Used

22. A Pre-bid Conference will be held at the **Josey High School Campus,** 1701 15th Street, Augusta, GA, 30901 Pre-Bid Conference is not mandatory. Bidders are urged to attend.

23. The Architect wishes to call to the attention of the bidder that any set of plans and specifications not returned in good condition, such bidder will not receive his refund for same.

24. The General Contractor is responsible for obtaining and paying for **ALL** necessary permits, license, fees, electrical, sewer & water tap fees, etc., in connection with the completion of this contract.

25. The General Contractor and each Subcontractor and Material Supplier, must furnish an Affidavit similar to the following forms. These Affidavits must be delivered to the Architect within thirty (30) days after completion of work.

See Part 1, Division C. Pages C-6 through C-17 for Affidavit and Specimen Copy Forms.

SECTION D

INDEX TO GENERAL CONDITIONS

ARTICLE

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Form of Agreement Between Owner & Manufacturer

SECTION E

GENERAL CONDITIONS

Article E-01. The general conditions of the contract, Articles E-01 to E-71, inclusive, bound herein and hereafter referred to as the "general conditions", shall govern in the event of any conflict with any other provisions of the contract documents unless notice to the contrary shall have been issued by the owner bearing the imprimatur of the owner as follows:

"By order of Richmond County Board of Education, owner".

The architect has no authority to amend the general conditions orally or in writing either expressly or by implication.

NOTES:

Article E-02. Omitted

NOTES:

Article E-03. Trade Names. - When reference is made in the contract documents to trade names, brand names, or to the names of manufacturers, such references are made solely to indicate that products of that description may be furnished and are not intended to restrict competitive bidding. If it is desired to use products of trade or brand names or of manufacturers' names which are different from those mentioned in the contract documents, application for the approval of the use of such products must reach the hands of the architect at least five (5) days prior to the date set for the opening of bids. The latter provision is a restriction which applies only to the party making a submittal. Therefore, the aforesaid restriction does not inhibit the architect from adding trade names, brand names, or names of manufacturers by addendum. The burden of proving the acceptability of a proposed product for use in place of a product or products designated by trade name or names, brand name or names, or by the name or names of manufacturers in the contract documents rests on the party submitting the request for approval. The written application for approval of a proposed product must be accompanied by technical data which the party requesting approval desires to submit in support of his application. The architect will consider reports from reputable independent testing laboratories, verified experience records showing the reputation of the proposed product with previous users, evidence of reputation of the manufacturer for prompt delivery, evidence of reputation of the manufacturer for efficiency in servicing its products, or any other written information that is helpful in the circumstances. The application to the architect for approval of a proposed product must be accompanied by a schedule setting forth in which respects the materials or equipment submitted for consideration differ from the materials or equipment designated in the contract documents. The degree of proof required for approval of a proposed product as acceptable for use in place of a named product or named products is that amount of proof necessary to convince a reasonable person beyond all doubt. To be approved, a proposed product must also meet or exceed all express requirements of the contract documents. If the submittal is approved by the architect, an addendum will be issued to all prospective bidders. Issuance of an addendum is a representation to all bidders that the architect in the exercise of his professional discretion, established that the product submitted for approval is acceptable and meets or exceeds all express requirements. In the event a submittal shall have been rejected by the architect and there shall have been a request for a conference as provided in this article pursuant to which conference the said submittal shall have been found to comply with the requirements of this article, a separate addendum covering the said submittal will be issued prior to the opening of bids.

In order for the architect to prepare an addendum intelligently, an application for approval of a product must be accompanied by a copy of the published recommendations of the manufacturer for the installation of the product together with a complete schedule of changes in the drawings and specifications, if any, which must be made in other work in order to permit the use and installation of the proposed product in accordance with the recommendations of the manufacturer of the product. (See Article E-43 which requires the contractor to do all cutting and fitting that may be required to make the several parts of his work come together properly and fit. Unless requests for approvals of other products have been received and approvals have been published by addendum in accordance with the above procedure, the successful bidder may furnish no products of any trade names, brand names, or manufacturers' names except those designated in the contract documents. Any party who alleges that rejection of a submittal is the result of bias, prejudice, caprice, or error on the part of the architect may request a conference with a representative of the owner, *Provided:* That the request for said conference, submitted in writing, shall have reached the owner at least five days prior to the date set for the opening of bids, time being of the essence.

NOTES:

Article E-1. Definitions. - (a) *Contract Documents*. - The contract documents are as described in the form of agreement. Article E-71 of the general conditions. (See Article E-71 for specimen of form of agreement.)

(b) *Parties*. - The owner, the contractor and the architect are those mentioned as such in the form of agreement. They are treated throughout the contract documents as if each were of the singular number and masculine gender.

(c) *Subcontractor.* - The term subcontractor as employed herein includes only those having direct contract with the contractor. It includes one who furnishes materials worked to a special design according to the plans and specifications of this work but does not include one who merely furnishes materials not so worked.

(d) *Notices.* - Written notices shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended or if delivered at or sent by registered mail to the last business address known to him who gives the notice.

(e) *Work.* - The term "work" of the contractor or subcontractor includes labor or materials or both.

(f) *Time Limits.* - All time limits stated in the contract documents or shown on the construction progress schedule are of the essence of the contract. (See also Article E-46)

(g) *Applicable Law.* - This contract shall be governed by the law of Georgia.

(h) *Specifications.* - The term "Specifications" shall include all written matter in the bound volume or on the drawings and any addenda or modifications thereto. (See also Article E-49)

(I) *Order of Condemnation.* - An order of condemnation shall be in writing, shall be dated, shall be signed by the architect, shall be addressed to the contractor with a copy to the owner, and shall contain three elements as follows:

FIRST ELEMENT: *Description of work....*

(1) which has been omitted or

(2) which is unexecuted as of the date of the order of condemnation, the time for its incorporation into the work under the construction progress schedule having expired (See also Article E-46), or

(3) which has not been executed in accordance with the methods and materials designated in the contract documents.

SECOND ELEMENT: *Citation* of the provision or provisions of the contract documents which has or have been violated.

THIRD ELEMENT: *Fixing* of a reasonable space of time within which the contractor shall have made good the deficiency which said space of time shall not be deemed to be an extension of contract time for filing the Notice of Readiness for Final Inspection pursuant to Article E-41 nor shall it be deemed to be authorization for amendment to the construction progress schedule. (See also Articles E-19, E-20, and E-50).

An order of condemnation may be issued for failure of the contractor to supply enough skilled workmen or enough materials or proper materials, the order of condemnation in such event being based on Article E-46, q.v. and upon the definition of work as set forth under Article E-1(e), q.v. (See also Article E-26)

(j) *Proceed Order.* - The proceed order is a written notice from the owner pursuant to which the contractor shall commence physical work on the site. (See Article E-46) A proceed order is a condition precedent to the execution of any work on the site by the contractor.

(k) *Work Order.* - A work order is a written notice from the owner issued separately to the contractor for each subcontractor. A work order is a condition precedent to the execution of any work on the site by the contractor.

(l) *Change Order Form.* - The change order form is the instrument by which adjustments in the contract sum are effected pursuant to changes made in accordance with Case (a), Case (b), or Case (c) of Article E-15 or in accordance with Subparagraph (I) of Article E-15. The change order form shall be accompanied by a breakdown in the form prescribed in a specimen which the owner will supply to any bidder upon request. The architect shall certify to the amount of the adjustment, and the change form shall be signed by the contractor and the owner. The breakdown is only for the purpose of enabling the architect and the owner to make a judgment on the dollar amount of the adjustment in the contract sum. No condition, term, qualification, limitation, exception, exemption, modification, or proviso shall appear in a breakdown it shall be invalid unless expressly recited in the change order from under Paragraph 3, “Description of Change”. Only such conditions, terms, qualifications, limitations, exceptions, exemptions, modifications and provisos as are recited under Paragraph 3, “Description of Change”, are valid. (See also Article E-15)

(m) *Install, Deliver, Furnish, Supply, Provide.* - Such words mean the work in question shall be put in place by the contractor ready for use unless expressly provided to the contrary.

(n) *Article Not Plenary.* - This article is not entire, plenary, or exhaustive of all terms used in the general conditions which require definition. There are definitions of other terms under articles to which the terms are related.

(o) *Grounds for Issuance of Notice of Declaration of Default.* - It shall be a sufficient ground for the issuance of a notice of declaration of default that the contractor has been unfaithful or delinquent in the performance of the contract or any of it in any respect. Without limitation of the foregoing and without subtracting from any right or defense of the owner under other provisions of the contract documents, the contractor acknowledges and agrees that it is *ipso facto* ground for issuance of a notice of declaration of default under the performance bond if the contractor shall have neglected or failed for any reason to remedy a breach of an order of condemnation within thirty (30) days after the owner shall have given written notice of said breach to the contractor and the surety on the performance bond with written demand of the owner for curing of the delinquency. The architect does not have authority to declare the contractor in default.

(p) *Cross-references and Citations of Articles and Paragraphs of the General Conditions.* - Cross-references and citations of articles and paragraphs of the general conditions are for the convenience of the contractor, architect, and the owner and are not intended to be plenary or exhaustive nor are they to be considered in interpreting the contract documents or any part of the contract documents.

(q) *Meaning of words and phrases.* - Unless the context or the contract documents taken as a whole indicate to the contrary, words used in the contract documents that the usual and common meanings shall be given their usual and common meanings and words having technical or trade meanings shall be given their customary meaning in the subject business, trade or profession.

Article E-2. Identification, Correlation, and Intent of Documents:

(a) *Identification.* - The architect shall identify the contract documents.

(b) *Correlation and Intent.* - The contract documents are complementary, and what is called for by one shall be as binding as if called for by all. The intention of the documents is to include all labor and materials, equipment, and transportation necessary for the proper execution of the work. It is not intended, however, that materials or work not covered by or properly inferable from any heading, branch, class, or trade of the specifications shall be supplied unless distinctly noted on the drawings. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards. (See also Article E-9) In the event the architect shall have used such phrases anywhere in the specifications as : “Work indicated on the drawings and herein specified”, “work shown and specified”, “in accordance with drawings and applicable specifications”, “these specifications and the accompanying drawings”, “as indicated on the drawings and as specified herein”, or similar expressions, they shall not be deemed to be and are not a defensible of the provisions under the present article of the general conditions, and they are not to be a requirement under the contract. Any of the aforesaid conjunctive expressions and phrases or any cross-references between drawings and specifications, between specifications and specifications, or between drawings and drawings to the contrary notwithstanding, the contract documents are complementary, and what is called for by one shall be as binding as if called for by all. (See also Articles E-1(m), E-36, E-37, and E-45)

NOTES:

Article E-3. Complete, Definite, and Clear Instructions and Schedules of Drawings. - (a) *Refinement of Documents.* - The contractor shall do no work without complete, definite, and clear drawings and specifications. In the event the contract documents are not complete, definite, and clear the contractor shall make demand upon the architect in writing for additional instructions and shall furnish the owner a copy of the aforesaid demand. With reasonable promptness the architect shall furnish complete, definite, and clear instructions in writing, or by means of drawings, or in writing and by means of drawings. (See also Articles E-2, E-14, E-18, and E-39) Such additional instructions if given orally shall be confirmed in writing or by drawings or both within a reasonable space of time. All such additional instructions shall be consistent with the contract documents, true developments thereof, and reasonably inferable therefrom. The work shall be executed in conformity with the aforesaid instructions. The architect shall furnish the owner a copy of all additional instructions issued to the contractor. (See also Articles E-16 and E-39)

(b) *Schedules.* - The contractor shall prepare a critical path schedule, subject to change from time to time in accordance with the progress of the work, fixing the dates at which the various detail drawings will be required, and the architect shall furnish them in accordance with that schedule.

NOTES:

1. Unless Otherwise specifically stated, all manufacturer's catalogs, specifications, instructions or other information or literature that are referred to in the Specifications will be considered as the latest edition and/or revision of such publication that is in effect on the date of the Invitation or Advertisement for Bids.

2. When standard specification such as the American Society for Testing and Materials, Federal Specifications, Department of Commerce (Commercial Standards), American Institute of Steel Construction, or other well-known public or trade associations, are cited as a starboard to govern materials and/or workmanship, such specifications or portions thereof as referred to will be equally as binding and have the full force and effect as though it were copied into these specifications. Such Standards as are mentioned as generally recognized by and available to the trades concerned. The Contractor will refer to Section 01095- Reference Standards and Definitions for locations and address where this information may be obtained. Unless otherwise specifically stated, the standard specifications referred to will be considered as the latest edition and/or revision of such specifications that is in effect on the date of the Invitation for Bids. In case of any conflicts between standard specifications and the written portion of the Specifications, the specifications as actually written herein will govern.

Article E-3.1 Schedules:

CONTRACTOR'S CONSTRUCTION SCHEDULES

The Contractor, within ten (10) Calendar days after Notice to Proceed or Contract Award shall prepare and submit for the Program Manager's approval a Contractor's Construction Schedule for the Work which shall provide for expeditious and practicable execution of the work. This critical path schedule shall contain milestone dates and will be coordinated and approved by the Program Manager, Architect and the Owner prior to the contractor's submittal of the first month's application to the Architect. **The first application for payment will not be processed unless the schedule is approved by the Architect, Program Manager and Owner.**

The Contractor's Construction Schedule will be developed by the Contractor according to the Critical Path Method (hereinafter referred as CPM). The requirement for CPM is included to ensure adequate planning and execution of the Work. And to assist the Program Manager and Owner in appraising and evaluating the progress of the Work. The Schedule shall be a detailed graphic representation of all significant aspects of the Construction Plan.

The Schedule shall be a computer-produced report utilizing compatible software approved by the Program Manger. The Schedule data shall be categorized in such way as to indicate components of work as directed by the Program Manager and Owner.

The Schedule shall indicate a late completion date for the Project that is no later than the Project's required completion date. All activity dates shall be given in calendar days. For all major equipment and materials fabricated or supplied for this project, the Schedule shall show a sequence of activities including:

Preparation of Shop Drawings and Sample submissions
Review of Shop Drawings and Samples
Shop Fabrication and delivery
Erection and/or installation
Project close-out

If the Contractor determines that they can perform work in less time than indicated in the bidding documents, the contractor may schedule the work accordingly, but no claims will be allowed for delay, disruption, acceleration or other costs to the reduced time schedules until times of completion as stated in the Bidding Documents have occurred.

Within five (5) calendar days of submission of the Schedule, the Contractor and his major Subcontractor shall participate in a conference with the Program Manager to review and evaluate the Schedule. Any revisions necessary as a result of this review shall be resubmitted within seven (7) calendar days after the conference. After approval, the Contractor shall provide the following to the Program Manager:

a. Three (3) copies of the completed Detailed Construction Progress Schedule in a graphic CPM Format
b. Three (3) copies of the completed Detailed Construction Progress Schedule tabular reports indicating Activity Number, Activity Description, Activity Duration, Early Start, Early Finish, Late Start, Late Finish, and Total Float.
c. A data diskette of the Detailed Construction Progress Schedule

The approved Detailed Construction Progress Schedule shall then be signed by the Contractor and shall then become the Baseline Schedule which the Contractor shall use in planning, organizing, directing, coordinating, performing and executing the Work. (including all activities of Subcontractors equipment vendors, and suppliers), and shall be the basis for evaluating the Progress of the Work.

SCHEDULE UPDATES- The Contractor shall be responsible for providing and submitting to the Program Manager CPM Schedule updated on a **monthly basis** on a date to be determined by the Program Manager. The monthly submission will include items a., b., and c., mentioned in the above article. The Contractor shall also submit to the Program Manager a **weekly "Look Ahead" schedule** prior to the weekly coordination meeting.

The Contractor's detailed schedule must reflect the normal anticipated adverse weather delays on all weather dependent activities. Anticipated adverse weather conditions will be based on Historical Data for the Augusta, Georgia Airport weather station.

MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS SCHEDULE

JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.
(5)	(5)	(4)	(2)	(3)	(3)	(4)	(3)	(3)	(3)	(3)	(5)

The sequencing and duration of activities within the Schedule shall indicate the amount of float. Float is defined as the amount of time between the Early Dates and the Late Dates of each activity or sequence of activities. Total float is defined as the amount of time any given activity or path of activities may be delayed before the project completion is affected. Float time will not be for the exclusive use of the Contractor, but will be used in the best interest of the completion of the Project within the specified time frame.

Extensions of time for performance or manpower will be granted only to extent that approved changes and/or unusual adverse weather and force majeure exceeds the total float in the affected activity or path of activities at the time approval was issued for the change.

Five (5) calendar days prior to the date of each Contractor's Application for Payment the Contractor's Project Manager and Superintendent shall meet with the Program Manager at the job site to review actual progress on the Work. At that meeting, unless excluded from the Scope of Work, the Contractor shall provide the following written reports:

1. Progress Report: It will show the activities, or portions of activities, completed during the reporting period, and the progress along the critical path in terms of days ahead or days behind. The Progress Report shall also contain a narrative report which shall include a description of problem areas, current and anticipated delaying factors and their impact, an explanation of corrective action to be taken and any proposed logic for a Recovery Schedule. In preparing each Progress Report, the Contractor is required to meet with all concerned Subcontractors and suppliers whose work is described in, affected by, or related to the Progress Report.

2. Schedule Report: It shall include the following minimum information for each activity and should be sorted by activity, remaining float (from the least to the most) and late start date (in chronological order):

a: Activity Number
b: Activity Description
c: Estimated Duration in Days
d: Early and Late Start Dates
e: Early and Late Finish Dates
f: Percentage Completion of Duration
g: Remaining Float/Days Behind Schedule

3. Preliminary Contractor's Application for Payment. Contractor, Architect and Owner, at this time will review preliminary Application for Payment and approve this preliminary request prior to Contractor finalizing formal monthly Application for Payment.

Monthly Applications for Payment will NOT BE REVIEWED OR PROCESSED without an updated construction schedule reflecting adjustments to contract time, individual values noted on the schedule and projected billings.

In all of the foregoing reports, actual start and finish dates should be indicated for each activity that has started or finished. Completed activities shall be omitted from Remaining Float and Late Start sorts.

If at any time during the prosecution of the Work any of the following conditions should exist, the Owner and/or Program Manager may require that the Contractor, at no extra cost to the Owner, prepare and implement a Recovery Schedule to explain and display how he intends to regain compliance with the Detailed Construction Progress Schedule during the immediate subsequent pay period. Not withstanding the above, the Contractor's responsibilities hereunder shall be limited to critical path activities and all designated Milestone dates or activities.

a. Should the Contractor's Daily Reports or Progress Reports indicate that in the opinion of the Program Manager a Recovery Schedule is required.

b. Should the Detailed Construction Progress Schedule and Schedule Report sorted by Early Finish show the Contractor to be seven (7) or more days behind schedule on critical path activities or any designated Milestone Dates or activities at any time during construction up to thirty (30) days prior to schedule Substantial Completion

c. Should the Detailed Construction Progress Schedule and Schedule Report sorted by Early finish show the Contractor to be three (3) or more days behind schedule on critical path activities or any designated Milestone Date or activities at any time during construction up to thirty (30) days prior to schedule Substantial Completion.

d. Should the Contractor make changes in the logic of the Detailed Construction Progress Schedule which, in the opinion of the Owner and/or the Program Manager are of a major nature.

The Contractor shall do the following after determination of the requirement for a recovery schedule:

a. Within five (5) calendar days, the Contractor shall complete the Recovery Schedule and submit to the Program manager for review. The Recovery Schedule shall represent the Contractor's best judgment as to how he shall regain compliance with the Detailed Construction Progress Schedule within the immediate subsequent pay period. The Recovery Schedule shall be prepared to a similar level of detail as the Detailed Construction Progress Schedule and shall have a maximum duration of one (1) month which shall coincide with the pay period.

b. Within three (3) days, the Contractor shall participate in a conference with the Owner and/or Program Manager to review the Recovery Schedule. Any revisions necessary as a result of this review shall be resubmitted within two (2) days of the conference. The revised Recovery Schedule shall then be the Schedule which the Contractor shall use in planning, organizing, directing, coordinating, performing, and executing the Work. (including all activities of subcontractors, equipment vendors, and suppliers) for its one (1) month duration, to regain compliance with the Detailed Construction Progress Schedule.

Seven (7) Calendar days prior to the expiration of the Recovery Schedule the Contractor will meet with the Owner and the Program Manager at the job site to determine the effectiveness of the Recovery Schedule and to determine whether the Contractor has regained compliance with the Detailed Construction Progress Schedule. At the direction of the Owner and/or the Program Manage, one of the following will happen:

a. If, in the opinion of the Owner and /or the Program Manager, the Contractor is still behind schedule, the Contractor will be required to prepare another Recovery schedule, to take effect during the immediate subsequent pay period.

b. If, in the opinion of the Owner and /or the Program Manager, the Contractor has sufficiently regained compliance with the Detailed Construction Progress Schedule, the Contractor will return to the use of this schedule.

CLAIMS FOR EXTENSION OF THE PROJECT SCHEDULE

It is understood that the Owner, Program Manager or Architect/Engineer shall not in any event be liable to the Contractor for delays of any kind whatsoever and the Contractor shall be fully responsible for making up lost time of all delays except to the extent that extensions of time are granted.

If the work is delayed as stipulated of the General Conditions, and the Contractor gives **written notice** of a claim for extension of time as stipulated in the General Conditions, time will be extended by such period as the Program Manager may consider reasonable.

No extension of time shall be allowed **unless a claim is presented in writing** to the Program Manager. In case of continued cause of delay, only one claim is necessary.

This shall be construed to release the Contractor from the obligation to perform at his own expense all overtime necessary to maintain the Contract completion date where delay have occurred which are not excused. If the Contractor is delayed by any acts of the Owner, Program Manager, Architect/Engineer is granted an extension of time by the Program Manager the Contractor shall comply with the time extension schedule with no additional compensation from the Owner.

Contractor must submit written requests for time extensions within five (5) calendar days from the date of cause for such a time extension request. Any requests beyond this time will be denied by Architect and/or Program Manager.

Article E-4. Copies of Contract Documents Furnished to Contractor. - The architect shall furnish to the contractor, free of charge, such number of copies of contract documents as shall be reasonably necessary for the execution of the work.

NOTES:

Article E-5. Shop Drawings. - (a) *Submission and Approval.* - The contractor shall submit no shop drawings which do not comply with the contract documents. He shall submit such reasonable number of shop drawings as shall be required by the architect for the work of the various trades, and the architect shall pass upon them, making proper corrections. The contractor shall make any proper corrections required by the architect, file with him two corrected copies, and furnish such other copies as may be needed. The architect's approval of such drawings or schedules shall not relieve the contractor from responsibility for deviations from drawings or specifications now shall it relieve him from the responsibility for errors of any sort in shop drawings or schedules.

(b) *Schedules.* - The contractor and the architect shall jointly prepare a shop drawing schedule, subject to change from time to time in accordance with the progress of the work, fixing the dates for submission of shop drawings by the contractor and for furnishing of approval by the architect. The contractor shall submit in accordance with the schedule, and the architect shall furnish approval in accordance with the schedule. The schedule must be consistent with the construction progress schedule required under Article E-50 of the general conditions.

(c) *Definition.* - Shop drawings are drawings, schedules, data, catalogue cuts, manufacturers' published recommendations, charts, bulletins, brochures, illustrations, circulars, roughing drawings or formulae distributed by contractors, subcontractors, manufacturers, materialmen, or suppliers for use in installing work.

-- [See also Articles E-3(b), E-18 and E-53] --

Article E-6. Drawings and Specifications at the Site. - The contractor shall keep at the site one copy of all drawings and specifications in good order and available to the architect and to his representatives.

NOTES:

Article E-7. Ownership of Drawings and Models. The Drawings, Designs, Specifications, and other documents prepared by the Architect/Engineer for this Project, including electronic files submitted by the Architect/Engineer to the Owner, shall become the property of the Owner, as payment for such Drawings, Designs, Specifications, and other documents are made to the Architect/Engineer pursuant to this Agreement. However, all reserved rights, including the copyright to such documents shall be retained by the Architect/Engineer. The Architect/Engineer's Drawings, Design, Specifications, and other documents prepared for this Project shall not be used by the Owner or others on other projects, for additions to this Project or for completion of this Project by the Owner or others, without prior written consent to such use is given by the Architect/Engineer, unless the Architect/Engineer is in default under this Agreement**.**

NOTES:

Article E-8. Samples. - The contractor shall furnish for approval all samples as directed. The work shall be in accordance with approved samples.

NOTES:

Article E-9. Materials, Appliances, Employees. - (a) *Payment for.* - Unless otherwise stipulated, the contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary for the execution and completion of the work. [See also Articles E-2 and E-70]

(b) *Quality of materials and workmanship.* - Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of good quality. The contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials and work. The burden of proof is on the contractor. [See also Article E-13]

(c) *Quality of discipline of employees.* - The contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him. [See also Article E-14]

NOTES:

1. All items will be installed in a workmanlike manner in accordance with the best recognized practice in the field concerned. Manufactured items will be in strict accordance with the manufacturer's printed directions, specifications and/or recommendations for installation of highest quality. All working parts will be properly adjusted after installation and left in perfect working order. Unless otherwise indicated, items exposed to weather or subject to flooding or wetting will be installed so as to shed and not hold water. Items will in all cases be installed plumb and true and/or in proper relation to surrounding materials.

   All materials entering into the construction of the building covered by this Contract including but not limited to those mentioned below, will be securely anchored and/or tied together in accordance with the best recognized practice in the field concerned whether shown, specified or not. Ties and anchors will be best quality for the purpose. Wythes of masonry and corners of masonry walls and partitions will be bonded together if possible unless otherwise specifically shown and where not bonded will be secured with appropriate metal ties or anchors. Masonry walls will be anchored to adjacent columns unless otherwise specifically shown. All wood, steel, concrete or other framing will be securely anchored and tied together and to supporting or abutting masonry. All veneers, finishes, and applied items will be securely anchored and tied to the backing material. The purpose of this paragraph is to insure that, except for expansion joints or otherwise where materials are purposely separated, each and every piece of material entering into the building will be bonded, anchored, tied or otherwise secured in place in a permanent manner that will permit expansion, contraction and other minor movements and normal use of the structure without structural features of the building becoming impaired and without any of it's parts becoming loose.

   Unless otherwise specifically specified, all items and parts thereof that are made of steel, iron or other ferrous metal that are not galvanized, plated or otherwise specified to be factory finished, will be cleaned and painted with one shop coat of the best quality rust inhibitive metallic primer. After installation, all exposed metal connections and abrasions will be touched up with the same materials as the shop coat and left in good condition for final finishing.

   Should a contractor's work requires caulking to complete the finished Product appearance of any item he is installing in the opinion of the Program Manager that Contractor will furnish and install that caulking whether or not called for on plans or in specifications.

Article E-10. Royalties and Patents. - The contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the owner harmless from loss on account thereof, except that the owner shall be responsible for all such loss when a particular process or the product of a particular manufacturer or manufacturers is specified, but if the contractor has information that the process or article specified is an infringement of a patent he shall be responsible for such loss unless he promptly gives such information to the owner. [See also Article E-11]

NOTES:

Article E-11. Surveys, Permits and Regulations. - (a) *General.* - The Owner shall furnish all surveys unless otherwise specified. Permits and licenses of a temporary nature necessary for the prosecution of the work shall be obtained and paid for by the contractor. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be obtained and paid for by the owner unless otherwise specified. The contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work. If the contractor observes that the drawings or specifications are at variance wherewith, he shall promptly notify the owner in writing, and any necessary changes shall be adjusted as provided in the contract for changes in the work. If the contractor performs any work knowing it to be contrary to such laws, ordinances, rules or regulations without such notice to the owner, he shall bear all costs arising therefrom. [See also Articles E-10 and E-42]

(b) *National Plumbing Code.* - The latest edition of the National Plumbing Code with all amendments as of the date of the opening of bids shall govern the installation of all work and is adopted and incorporated into the contract documents and made a part thereof by reference, provided, however: That the drawings and specifications shall be adhered to in all cases where they call for quality of materials, quality of workmanship, or quality of construction which is equal to or in excess of the quality required by the National Plumbing Code and provided also: That there may be no variances from the plans and specifications except to the extent that the said variances shall be necessary in order to comply with the National Plumbing Code. It shall be the responsibility of the contractor to familiarize himself with the requirements of the National Plumbing Code. If there are any express requirements in the plans and/or specifications which are at variance to the National Plumbing Code, all changes in the work necessary to eliminate the said requirements and make the work conform to the National Plumbing Code shall be adjusted as provided in the contract for changes in the work.

(c) *National Electrical Code.* - The latest edition of the National Electrical code with all amendments as the date of the opening of bids shall govern the installation of all work and is adopted and incorporated into the contract documents and made a part thereof of reference, provided, however: That the drawings and specifications shall be adhered to in all cases where they call for quality of materials, quality of workmanship, or quality of construction which is equal to or in excess of the quality required by the National Electrical Code and provided also: That there may be no variances from the plans and specifications except to the extent that the said variances shall be necessary in order to comply with the National Electrical Code. It shall be the responsibility of the contractor to familiarize himself with the requirements of the National Electrical Code. If there are any express requirements in the plans and/or specifications which are at variance to the National Electrical Code, all changes in the work necessary to eliminate the said requirements and make the work conform to the National Electrical Code shall be adjusted as provided in the contract for changes in the work.

NOTES:

1. The Contractor is solely responsible for the safety of his employees, subcontractors and others in the work area. The Contractor is solely responsible for compliance with all current editions of the State and Federal safety laws, including but not limited to, the latest amendments of the following: Williams-Steigler Occupational Safety and Health Act of 1970, Public Law 91-956, Part 1910- Occupational Safety & Health Standards, Chapter 17 of Title 29 Code of Federal Regulation, Part 1926- Safety & Health regulations for Construction Chapter 17 of Title 29, Code of Federal Regulations

   The Contractor will hold weekly meetings with all employees and subcontractors to monitor compliance with all safety regulations. Typed minutes of Safety Meetings will be distributed and filed and will be available for inspection and review.

   Contractor will include in his bid all items necessary to comply with OSHA provisions and standards

2. The Contractor agrees to fully comply, when applicable with any and all federal regulatory agency, state or local laws and regulations concerning the transport, storage, and handling of any hazardous substance or materials and to notify the Program Manager three (3) days prior to delivery of any hazardous or harmful substance or materials to the project.

   The Contractor also agrees to provide the Program Manager, for the purposes of information, written storage, handling and health instructions and precautions from the manufacturer at the time of notification of delivery. The Contractor will use only competent, knowledgeable workmen trained in the proper handling and storage of these materials and agrees to provide at his expense all safety devices and barriers for his workmen and others as recommended by the manufacturer or that may be deemed necessary by an appropriate governing agency and/or the Program Manager. The Contractor will not under any circumstances dispose of any hazardous substances or containers on the owner's property of facilities. Methods of disposal of these hazardous materials or containers must be in a manner as prescribed by law. The Contractor assumes total liability and responsibility for the handling, storage and disposal of these hazardous materials and indemnifies the Owner, Architect and Program Manager of and from liability, claims, and demands for bodily injury and property damage arising out of the use of the hazardous materials by this Contractor and his agents

   The Contractor will ensure a copy of all OSHA Hazardous Communications information is on site and available to the Program Manager

   The Contractor will indemnify and hold harmless the Owner, Program Manager and Architect from all claims and citation arising from the Contractor's non-compliance with the safety regulations and laws as listed in paragraph 10.1.1.1, including non-compliance of his employees, his subcontractors and such independent contractors which he may employ.

   The Owner reserves the right to perform any work on the site necessary to correct any conditions which pose a hazard to the health or safety of pupils, teachers, administrators or the general public.

Article E-12. Protection of Work and Property. - (a) *Duty to Protect Property.* - The contractor shall continuously maintain adequate protection of all his work from damage [See also Article E-24] and shall protect all other property from damage, injury, or loss arising in connection with the work regardless of who may be the owner of said property. He shall make good any such damage, injury, or loss except such as may be directly the result of errors in the contract documents or such as shall be caused directly by agents or employees of the owner. [See also Article E-27]

(b) *Safety Precautions.* - The contractor shall comply with provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work arising out of and in the course of employment on work under the contract. The contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage which may result from their improper construction, maintenance, or operation. He shall erect and properly maintain at all times as required by the conditions and progress of the work proper safeguards for the protection of workmen and the public and shall post danger warnings against any hazards created by the construction operations. He shall designate a responsible member of his organization on the work hose duty shall be the prevention of accidents. In the absence of notice to the contrary, filed with the architect in writing with copy to the owner, this person shall be the superintendent of the contractor. [See also Article E-14]

(c) *Emergencies.* - In an emergency affecting the safety of life or of the work or of adjoining property, the contractor, without special instruction or authorization from the architect or owner, is hereby permitted to act, at his discretion, to prevent such threatened loss or injury. Any remuneration claimed by the contractor on account of emergency work shall be determined in accordance with allowances permitted on force account under Case (c) of Article E-15 of the general conditions.

(d) *Blasting.* - In the absence of an express provision in the contract permitting blasting, there shall be no blasting. If blasting is permitted under the contract and under the law which is applicable to the premises, such blasting shall be done in such manner as to prevent all scattering. (See also Article E-27)

(e) *Rain Water, Surface Water, and Back-up.* - The contractor shall protect all work, including but not limited to excavations and trenches, from rain water, surface water, and back-up of drains and sewers. The contractor shall furnish all labor, pumps, shoring, enclosures, and equipment necessary to protect and to keep the work free of water.

(f) *Underground Gas Pipe Law.* - The contractor by signing the contract acknowledges that he is fully aware of the contents and requirements of *Georgia Laws 1969. Pages 50 and following, and any amendments and regulations pursuant thereto,* (the preceding italicized requirements being hereinafter referred to as the "underground gas pipe law"), and the contractor shall comply therewith. The contractor acknowledges that the contractor is the "person" defined in the above-mentioned underground gas pipe law (a) who will engage in the activities which are regulated thereby, (b) who is required to examine maps filed pursuant thereto, (c) who is required to give written notices to gas companies in accordance therewith, (d) who is required to receive written statements from gas companies as prescribed thereby, and (e) who is to perform and do certain things referred to therein *only* after observing the precautions with respect to underground gas pipes and facilities which are prescribed therein. These provisions of the contract do not repeal the restrictions under Subparagraph (d) of Article E-12 of the general conditions nor do they limit or reduce the duty of the contractor otherwise owed to the owner, to other parties, or to both. The contractor agrees that the foregoing provisions supplement Articles E-12 and E-27 of the general conditions The contractor agrees and acknowledges that any failure on his part to adhere to the underground gas pipe law shall not only be a violation of law but shall also be a breach of contract and a specific violation of the provision under Article E-12 of the general conditions which pertains to safety precautions.

(g) *High Voltage Act.* - The contractor by signing the contract acknowledges that he is fully aware of the contents and requirements of *Act No. 525, Georgia Laws 1960, Pages 181 and following, any amendments thereto, and Rules and Regulations of the Commissioner of labor pursuant thereto* (the preceding italicized requirements being hereinafter referred to as the "high voltage act"), and the contractor shall comply therewith. The signing of the contract shall also confirm on behalf of the contractor that he

(1) has visited the premises pursuant to Article E-15 (g) of the general conditions and has taken into consideration the location of all electric power lines on and adjacent to all areas onto which the contract documents require or permit the contractor either to work, to store materials, or to stage operations, and

(2) that the contractor has obtained from the local power provider/company of the aforesaid electric power lines advice in writing as to the amount of voltage carried by the aforesaid lines.

The contractor agrees that he is the "person or persons responsible for the work to be done" as referred to in the high voltage act and that accordingly the contractor is solely "responsible for the completion of the safety measures which are required by Section 3 of the high voltage act before proceeding with any work..." The contractor agrees that prior to the completion of precautionary measures required by the high voltage act he will neither bring nor permit the bringing of any equipment onto the site (or onto any area or areas onto which the contract documents require or permit the contractor to work, to store materials, or to stage operations) with which it is possible to come within eight feet of any high voltage line as defined in the high voltage act, and the contractor assumes complete and sole responsibility for any accident or accidents which may occur as a result of contact with a high voltage line or lines locate (a) on the site and (b) on any area or areas onto which the contract documents require or permit the contractor wither to work, to store materials, or to stage operations, or (c) within working distance for equipment or materials being used on (a) and (b) above. These provisions of the contract do not limit or reduce the duty of the contractor otherwise owed to the owner, to other parties, or to both. The contractor agrees and the foregoing provisions supplement Articles E-12 and E-27 of the general conditions. the contractor agrees that the foregoing that any failure on his part to adhere to the high voltage act shall not only be a violation of law but shall also be a breach of contract and a specific violation of the provision under Article E-12 of the general conditions which pertains to safety precautions. The contractor is notified that the Rules and Regulations promulgated by the Commissioner of Labor under date of January 11. 1967, contain a statement under Section 12 that...

"The Division of Inspection of the Department of Labor will act in an advisory capacity to any person, firm, or corporation contemplating any operations near high voltage lines as defined in the Act..."

(h) *Building Construction Safeguards.* - The contractor acknowledges and agrees that he is the person responsible under the law and that he is the person employing or directing others to perform labor within the meaning of Georgia Laws 1967, p. 792, as amended; Ga. Code Ann. Sections 54-406 through 54-411. He acknowledges and agrees likewise that he will comply with the aforesaid law.

NOTES:

Article E-13. Inspection of Work. - (a) *Access to Work.* - The architect and his representatives and owner shall at all times have access to the work wherever it is in preparation or progress, and the contractor shall provide proper facilities for such access and for inspection. [See also Article E-9]

(b) *Notice to Architect from Contractor Prior to Covering Work.* - If the specifications, the architect's instructions (either in the specifications or issued later in writing), laws, ordinances or any public authority require any work to be specially tested or approved, the contractor shall give the architect timely notice in writing of its readiness for inspection, and if the inspection is by any authority other than the architect, of the date fixed for such inspection. [See also Article E-58] Inspections by the architect shall be made promptly and where practicable at the source of supply. If any work should be covered without approval or consent of the architect, it must, if required by the architect, be uncovered for examination at the contractor's expense. [See also Article E-58]

(c) *Re-examination or Re-testing of Work Covered Pursuant to Consent of Architect.* - Re-examinations or re-testing of questioned work covered pursuant to consent of the architect may be ordered by the architect, and if so ordered the work must be uncovered by the contractor. If such work be found in accordance with the contract documents, the owner shall pay the cost of re-examination and replacement or of re-testing. If such work be found not in accordance with the contract documents, the subcontractor shall pay such cost unless he shall show that the defect in the work was caused by another sub-contractor, and in that event the owner shall not pay such cost. Contractor shall "back charge" subcontractor, not charge Owner for testing. Cost shall flow to party that caused defective work. Re-examination or re-testing under the terms of Article E-13(c) applies only to work which has been covered with consent of the architect. Work covered without consent of the architect must be uncovered for examination as provide under Article E-13(b).

(d) *Inspection Does Not Relieve Contractor.* - Under the contract documents the contractor has assumed the responsibility of furnishing all services, labor, and materials for the entire work in accordance with such documents. No provisions of this article nor any inspection of the work by the owner, representatives of the owner, resident engineer inspector, clerk-of-the-works, engineers employed by the architect, representatives of the architect, or the architect shall in no way diminish, relieve, or alter said responsibility and undertaking of the contractor; nor shall the omission of any of the foregoing to discover or to bring to the attention of the contractor the existence of any work or materials injured or done not in accordance with said contract documents in any way diminish, relieve, or alter such obligation of the contractor nor shall the aforesaid omission diminish or alter the rights or remedies of the owner as set forth in the contract documents. The resident engineer inspector has no power to make decisions, to accept or reject work, or to consent to the covering of work. The resident engineer inspector owes no duty to the contractor. [See also Articles E-38, E-41, and E-60]

(e) *False Starts.* - In the event notice of readiness pursuant to Article E-13(b), above, shall have been issued prematurely by the contractor, his action shall be deemed to be a "false start", and the contractor shall be liable for the damage resulting from the aforesaid false start, including but not limited to the salary, professional fees, and travel and living expenses of the person or parties inconvenienced by the aforesaid false start. [See also Article E-41 for further example of "false start"]

NOTES:

1. During the progress of the work, the Program Manager and/or the Architect shall inspect the work for conformance to the Contract Documents. Should the inspection reveal work that is not nonconformance with the Contract Documents, and if the nature of the non-conformance so warrants, the Program Manager and/or the Architect will issue a written deficiency list which will stipulate the item or items of work which are non-conforming and will specify a reasonable time for the deficient work to be brought into conformance with the Contract Document.

   The Contractor, upon receipt of the deficiency list will implement corrections within the stipulated time, and will notify the Program Manager and/or Architect in writing that the work has been corrected and request inspection.

   Upon receipt of the Contractor's request for inspection, the Program Manager and/or Architect will inspect the corrective work, and, if the work is satisfactory, the deficiency list will we rescinded. During the time period that the deficiency list is in effect, the Program Manager and/or Architect may withhold certification for payment as stipulated in subparagraph until the deficiency list is rescinded or, if in the opinion of the Program Manager and/or Architect, the Contractor is making a good faith effort to correct the deficiency.

   Until the work is fifty percent (50%) complete, the Owner will pay Ninety percent (90%) of the portion of the amount due on account of progress payments.

   At the time the work is fifty (50%) complete and providing that the Contractor is on or ahead of the schedule as determined by the Program Manager and/or Architect and the work is satisfactory and in the absence of other good sufficient reasons, the Contractor may request in writing, and prior to pay application, that the retention be reduced to five percent (5%) of the amount due. Accompanied with the written request of retainage reduction the Contractor shall submit AIA G707 A, Consent of Surety to Reduction in or Partial Release of Retainage, latest edition.

   The full contract retainage may be reinstated if the manner and progress of the work does not remain satisfactory to the Program Manager and/or Architect.

Article E-14. Superintendent and Supervision by Contractor. - (a) *Superintendent of Contractor.* - The contractor shall keep on his work during its progress and until the final certificate has been executed by the architect a competent superintendent and any necessary assistants, all satisfactory to the architect. The superintendent shall not be changed except with the consent of the architect unless the superintendent proves to be unsatisfactory to the contractor and cease to be in his employ. The superintendent shall represent the contractor in his absence, and all directions given to the superintendent shall be as binding as if given to the contractor. [See also Articles E-9, E-12, E-15(c), and E-60]

(b) *Supervision by Contractor.* - The contractor shall give efficient supervision to the work, using his best skill and attention. He shall carefully study and compare all drawings, specifications, and instructions and shall not be held responsible for their existence or discovery.

-- [See also Articles E-3, E-40, and E-41] --

NOTES:

1. The Contractor's Superintendent shall be a competent representative, capable of the following (1)Supervision of tradesmen; (2) Reading and interpreting the Contract Documents; (3) Orderly coordination of this work with the Construction Manager and Architect in the daily execution of the work; (4) Laying out his work; (5) Representing the Contractor with the Owner, Program Manager and Architect in the daily execution of the work; (6) Controlling and establishing good quality in the completed work.

   The Contractor's representative shall be the sole supervisor of the Contractor's Labor Force. He shall attend the regularly scheduled progress meeting on-site, keep himself and his company informed of scheduled requirements, safety hazards and general job conditions. He shall plan and pursue the work under his supervision in a professional and expeditious manner.

   The Contractor's Superintendent shall be present at the job site whenever work is being performed by his own forces or by his subcontractor's forces.

   The Contractor shall submit, prior to starting work on the project, a resume of the superintendent to be employed on the work. Assignments of superintendents shall be subject to approval by the Program Manager/Architect.

   The Program Manager/Architect reserves the right to review the performance and competence of the Contractor's Superintendent and the Superintendents of the Contractor's major subcontractors. In the event that the performance of the Contractor's superintendent or the superintendents of the Contractor's major subcontractor's is judged to be detrimental to the project and that the superintendent's removal will be in the best interest of the Owner's, other Contractors, and the project; the Program Manager/Architect shall request the superintendent's removal in writing. The Contractor shall, upon receipt of written notice, remove the superintendent, or request his major subcontractor to remove the superintendent, from the project with in two weeks and provide a suitable replacement.

Article E-15. Changes in the Work. - (a) *Owner's Right to Make Changes.* - The owner without invalidating the contract may authorize or order work or may authorize or order changes by altering, adding to, or deducting from the work, the contract sum being adjusted accordingly. Such work is hereinafter designated "change" or "changes". All such changes shall be performed under the conditions of the original contract except that any claim for extension of time caused thereby shall be adjusted at the time of signing of the change order from. [See Article E-1 for definition of the change order form]

(b) *Cost to Owner for Changes.* - The cost to the owner of any change shall be determined in one or more of the following ways:

CASE (a) By estimate and acceptance in a lump sum. Lump Sum must be accompanied by cost breakdown by material, labor and taxes, with overhead and profit broken out so costs and charges can be verified by Architect and/or Program Manager.

CASE (b) By unit prices named in the contract or subsequently agrees upon. Unit prices are net. Neither establishment of unit prices in the contract nor later agreement to unit prices shall entitle the contractor to execute any change under Case (b) prior to issuance of an authorization or order of the owner in writing. The Owner is NOT OBLIGATED to use the unit prices listed on the Contractor's bid form for changes involving changes which may involve unit prices listed on the Contractor's bid form. The Owner may elect to use CASE (a) or CASE (c) to determine the cost of a change if it determines CASE (b) unit costs do not represent a fair or accurate means of determining the cost of a change.

CASE (c) By force account, which is defined as expenditures allowed under Article E-15(h) plus a percentage or percentages as stated under Article E-15(h).

(c) *Changes Forbidden without Consent of Owner.* - Neither the architect nor the contractor shall make any change whatsoever in the work without authorization or order of the owner in writing except in emergency as described hereinbelow. The making of any change without authorization or order of the owner in writing is a breach of contract except in emergency as referred to under Article E-12. In the absence of authorization or order of the owner given in advance in writing (except in emergency as referred to under Article E-12) the contractor shall have no claim for payment, repayment, reimbursement, remittance, remuneration, compensation, profit, cost, overhead expense, loss, expenditure, allowance, charge, demand, hire, wages, salary, tax, cash, assessment, price, money, bill, statement, dues, recovery, restitution, benefit, recoupment, exaction, injury, damages, or time based upon or resulting from any change. [See also Articles E-53 and E-60]

(d) *Notice of demand of contractor for extraordinary remuneration or for damages.* - For a change in the work the contractor shall be entitled to no claim other than or in excess of allowances permitted under Article E-15(h) of the nature of the claim and (b) the owner shall have agreed in writing to the claim. Commencement of execution of a change authorized by the owner in the absence of the aforesaid written notice from the contractor and written agreement to the claim by the owner shall be deemed to be and is conclusive proof that the contractor acknowledges that he makes no claim other than or in excess of allowances permitted under Article E-15(h).

(e) *Subsurface Conditions.* - Material below the surface of the earth is assumed to be earth and other material that can be removed by power shovel or similar equipment. Should conditions encountered below the surface of the ground be at variance to conditions indicated by drawings or specifications [See also Article E-15(g)], the contract sum shall be adjusted as provided in the contract for changes in the work upon claim by either party made in writing within a reasonable time after the first observance of the conditions, PROVIDED: That the contractor shall in any event give written notice to the Authority before proceeding to execute any change resulting from subsurface conditions and, PROVIDE FURTHER: That, except as referred to hereinbelow the owner shall not be liable to the contractor for any claim occasioned by the aforesaid subsurface conditions except in accordance with and pursuant to authorization of the owner issued in writing prior to commencement of execution of the aforesaid change to which authorization the contractor shall have taken no exception. If exception to the authorization be taken by the contractor the owner may issue an order pursuant to Article E-15(i).

Commencement of execution of work pursuant to Article E-15(i) shall not exclude the recovery of damages by the contractor under other articles of the general conditions, but the cost to the owner for the changes executed pursuant to the aforesaid order shall not exceed the “net allowable expenditures” permitted to the contractor under Article E-15(h) plus the “allowance for overhead and profit” permitted under Article E-15(h).

(f) *Rock.* - If rock, as hereinafter defined, is encountered, no claim for additional compensation for changes shall lie against the owner in the absence of previous authorization by the owner in writing, and the cost to the owner for any changes shall be determined as provided in the contract for changes. CAUTION: No rock for which extra compensation is expected to be received shall be removed except pursuant to and in conformity with a written authorization or order of the owner. No removal of rock as defined herein shall be included in the base bid. *Rock is defined as follows:* (1) Material requiring blasting, (2) boulders of one-half cubic yard or more, (3) material which cannot be removed by power shovel or similar equipment, as stated herein, shall include, but not be limited to the following: For Trenches and Pits: A track-mounted power excavator, equivalent to Caterpillar Model No. 215clc, and rated at not less than 115 HP flywheel power and 32,000 pound drawbar pull and equipped with a short stick and a 42 inch wide, short tip radius rock bucket rated at 0.81 cubic yard (heaped) capacity. Trenches in excess of 10 feet in width and pits in excess of 30 feet in either length or width are classified as open excavation.

For Open Excavations: Caterpillar Model No. 973 or equivalent track-mounted loader, rated at not less than 21 OHP flywheel power and developing minimum of 45,000 pound breakout force (measured in accordance with SAEJ732) or (4) material requiring removal by pneumatic tools or by the use of bars or sledges. Shale, rotten stone, or stratified rock that can be loosened with a pick or removed by power shovel or similar equipment shall not by classified as rock. "Intermittent drilling, blasting, or ripping to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation."

(g) *Existing Conditions.* - The contractor in undertaking the work under this contract is assumed to have visited the premises and to have taken into consideration all conditions which might affect his work. No consideration will be given any claim based on lack of knowledge of existing conditions except where existing conditions are such as cannot be readily ascertained. Any claims relating to conditions which were not readily ascertainable shall be adjusted as provided in the contract for changes in the work

(h) *Cost to Owner, Allowances for Contractor, and Allowable Expenditures.* - In Cases (a) and (c), the "allowance for overhead and profit" combined, included in the total cost to the owner, shall be based upon the following schedule:

(1) *For the contractor* an allowance for work which he performs with his own forces, not to exceed 20% of his "net additional allowable expenditures", if any, for changes.

(2) *For a subcontractor* an allowance for work which he performs with his own forces, not to exceed 20% of his "net additional allowable expenditures", if any, for changes. A subcontractor shall receive no allowance for overhead and profit on work not performed by his own forces. Under this contract, the forces of a subcontractor are deemed to be and are the forces of the subcontractor. [See also Articles E-36 and E-37]

(3) *For the contractor* an allowance for work performed by his subcontractor, not to exceed 7.5% of the amount, if any, due the subcontractor for changes.

The above percentages shall be applied to the "net additional allowable expenditures", if any, as limited and defined herein. If the net difference between "allowable expenditures" and savings results in a decrease in expenditures, the amount of credit allowed the owner shall be the net decrease without any credit for profit and overhead. "Net additional allowable expenditures" as used herein shall mean the difference between all "allowable expenditures" and savings. The term "allowable expenditures" is limited to and defined as items of labor or materials, the use of heavy construction equipment (such as scrapers, backhoes, excavators, bulldozers, draglines, motor graders, and like equipment), and all such items of cost as public liability and workmen's compensation insurance, social security and old age and unemployment insurance, and (in cases where there is an extension of time) *pro rata* expenditures for time of foremen employed in the direct superintendent of productive labor in execution of changes.

All expenditures not included in the term "allowable expenditures" as limited and defined in this article shall be considered as overhead, including, but not limited to, insurance other than that which is mentioned in this article, bond premiums, supervision, travel (meals, transportation, and lodging), superintendent (except *pro rata* time of foremen as referred to herein), timekeepers, clerks, watchmen, hand tools, small tools, incidental job burdens, and office expense. Any other provisions in the contract documents to the contrary notwithstanding, only demonstrable, direct, out-of-pocket expenditures for the changes plus percentages as set forth hereinabove shall be allowable for changes. No wages of a foreman shall be allowable for a change carried on concurrently with contract work unless the claim includes a demand for extension of time caused by the authorizing or ordering of the change.

(i) *Execution of Changes Pursuant to Order.* - In the event neither Case (a), Case (b), nor Case (c) can be mutually agreed upon as the method of determining the cost to the owner for a change, the contractor, provided he receives a written order from the owner, shall proceed on force account under Case (c), and he shall keep and present in such form as the architect may direct a correct account of the expenditures together with vouchers. Allowable expenditures shall in no event exceed current costs for like service and materials, the burden of proof being on the contractor.

(j) *Stipulated Maximum Sum.* - Under Case (b) and Case (c), the owner shall prescribe the limits of any authorization or order for a change by means of an authorization or order in writing stipulating the maximum sum of money committed toward execution of the said change, and the contractor shall have no authority to perform any change which will cost the owner in excess of the stipulated maximum sum. It shall be solely the contractor's responsibility to apply in writing *to the owner* NOT (repeat NOT) to the architect for an enlargement of the scope of the authorization or order by an increase in the said stipulated maximum sum if during the course of the performance of a change on force account under Case (c) the additional cost of the change to the owner as established in accordance with allowable expenditures and allowances for profit and overhead permitted under Article E-15(h) is approaching the said stipulated maximum sum, and it shall likewise be the responsibility of the contractor to apply for an enlargement of the scope of the authorization or order if the total value of units at any agreed unit price under Case (b) is approaching the said stipulated maximum sum. For changes in the work no claim for payment, repayment, reimbursement, remittance, remuneration, compensation, profit, cost, overhead, expense, loss, expenditure, allowance, charge, demand, hire, wages, salary, tax, cash, assessment, price, money, bill, statement, dues, recovery, restitution, benefit, recoupment, exaction, injury or damages shall lie against the owner for any amount in excess of such amount as shall have been justly agreed to under Case (a) or in excess of such amount as shall have been established as the stipulated maximum sum under Case (b) or Case (c). The cost to the owner for any change in the work, except a change base upon agreed unit prices under Case (b), shall be established in accordance with the schedule of allowances and percentages stipulated under Article E-15(h).

(k) *Breakdown of Expenditures, Cases (a) and (c).* - To accompany all change orders, the contractor shall furnish a breakdown of expenditures for labor and materials by units and quantities in the form prescribed by the owner, and the breakdown shall be accompanied by the following declaration: "I swear and affirm under the penalties for false swearing that the costs shown hereinabove do not exceed current costs for like services or materials and do not exceed the actual costs to the contractor therefore; and that the quantities shown do not exceed actual requirements." For all force account changes the contractor shall promptly and in no event later than thirty (30) days after receipt of written demand therefore pursuant to Article E-15(h) submit to the architect a complete, accurate, and final breakdown and account, together with vouchers, showing all expenditures and percentages allowable under Case (c). For all unit price changes the contractor shall promptly and in no event later than thirty (30) days after receipt of written demand therefore pursuant to Article E-15(h) submit to the architect an accurate account of the quantity of work performed under Case (b). In any case, the architect shall certify to the amount [including under Case (a) and Case (c) the allowance prescribed in the contract for overhead and profit] due the contractor. [See also Articles E-1(l) and E-50]. The contractor shall obtain and furnish as back-up to the contractor's breakdown a separate breakdown for each subcontractor's charges prepared by each subcontractor on the letterhead of the subcontractor and properly signed by the subcontractor.

(l) *Payment on Account.* - If the contractor desires to obtain payment on account before any change in the work has been completed, a change order certified by the architect and signed by the contractor and the owner must have been executed for so much of the change as has been completed at the time of the filing of the claim for payment on account.

(m) *Form and Execution of Change Orders.* - Change orders shall be certified by the architect and signed by the contractor and the owner in accordance with the form of change order prescribed by the owner, copies of which shall be furnished to any bidder upon request. No claim of the contractor for account of a change shall be due nor shall any such claim appear on a periodical estimate or demand for final payment until (1) the claim shall have been certified by the architect and (2) a change order shall have been executed by the contractor and the owner. [See also Article E-1(l)]

(n) *Time of Submission of Claims ["Statement of Claim"].* - Budgeting and cash flow being of material importance to the owner, no claim of the contractor on account of any change or on account of any alleged negligence of the architect or owner whether said claim shall be accrued or prospective, shall be valid unless a "statement of claim" in full accompanied by vouchers and other supporting data shall have been filed with the owner by the contractor not later than thirty (30) days after receipt of written request therefore by the contractor from the owner, time being of the essence. The "statement of claim" shall contain a concise and clear recital of the ground or grounds on the basis of which the claim is asserted, including a designation of the provision or provisions of the contract documents on which the claim is based. The "statement of claim" shall also indicate the dollar amount of the claim. [See also Articles E-16 and E-39(c)]

(o) *Claims distinguished.* - Claims for damages arising out of alleged negligence of the architect or owner as provide for under Article E-16 are distinguished from claims for allowances for changes as provided for under Article E-15. Claims for damages must be filed entirely separately pursuant to Article E-16, and claims for allowances for changes must be filed entirely separately pursuant to Article E-15 unless the contractor and owner agree in writing otherwise. [See also Article E-39(c)]

(p) *Conditions Different from Those Indicated in Contract Documents.* - The parties contemplate delays necessary to complete tests, to redesign, and to perform change order work in the event conditions encountered at the site are different from those indicated in the contract documents. Execution of any change must be authorized. In such event there shall be an adjustment in the contract sum as provided in the contract for changes in the work, but no claim for damages shall lie against the owner for the aforesaid delays. Such delays are not a breach of contract because the parties contemplate such delays as natural and probable consequence of construction operations.

The parties agree that such delays constitute no wrong or injury, create no right to a claim for damages, and are not a ground for claiming extraordinary remuneration.

(q) *Rental Rates and Wage Rates.* - Within five (5) days after execution of the form of agreement and in any event prior to the commencement of any work on the site the contractor shall submit in accordance with the style and format of a specimen to be furnished by the owner (copies of which specimen will be furnished to any bidder on request) for consideration of the owner (1) a proposal for rental rates on heavy construction equipment which shall apply in the event work is performed under Case (c) of Article E-15 and (2) a proposal for wage rates of operating engineers which shall apply in the event of the execution of any work under Case (c) of Article E-15. Under penalty of false swearing a principal of the contracting firm shall certify that the proposal for rental rates and proposal for wage rates do not exceed current costs for like services. The owner will in no event consider a rental rate in excess of 80% are supported by proof satisfactory to the owner that the excess rates are reasonable, the decision of the owner to be final, binding, and conclusive on all parties. Rental rates shall be payable only for the actual time the equipment is required on the site in the reasonable opinion of the architect whose decision in this respect shall be final, binding and conclusive on all parties.

(q) *Unit Prices.* - The term "net" as used in reference to "unit prices" means in respect to all change orders performed in accordance with Case (b) of Article E-15 of the general conditions that the unit prices offered by the contractor and accepted by the owner shall be inclusive of all sums for payment, repayment, reimbursement, remittance, remuneration, compensation, profit, cost, overhead, expense, loss, expenditure, allowance, charge, demand, hire, wages, salary, tax, cash, assessment, price, money, bill, statement, dues, recovery, restitution, benefit, recoupment, exaction, or injury. Upon request of the owner in writing and within such reasonable space of time as the owner shall designate in writing the contractor shall submit for consideration of the owner proposals in writing for unit prices to be applied in the event work is authorized by the owner to be performed under Case (b) of Article E-15. Under penalty of false swearing a principal of the contracting firm shall certify that the unit prices submitted do not exceed current costs for like services or materials.

NOTES:

1. In determining the total cost or credit to the Owner resulting from a change in the Work, the allowances for overhead and profit combined, including the total cost to the Owner, shall not exceed the percentage included in the Owner-Contractor agreement.

2. Only fully executed Change Orders, signed by the Contractor, Architect and Owner may be included in the Application for Payment

Article E-16. Claims. - (a) *Extra cost.* - If the contractor maintains that any instructions by drawings or otherwise involve extra cost to the owner under this contract, he shall give the owner and the architect written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute any change except in emergency endangering life or property. The allowances to the contractor shall then be as provided under Article E-15. No claim for extra cost shall be valid unless so made.

(b *Damages.* - If either party to this contract should suffer damage in any manner because of any wrongful act or neglect of the other party or of anyone employed by the other party, then he shall be reimbursed by the other party for such damage. No claim of the contractor for damages shall be valid unless written notice thereof shall have been received by the owner by registered mail within 15 days after occurrence of the event on which the claim is based. [See also Articles E-15, E-39, and E-41]

(c) *Protest.* - All references to arbitration are deleted from the contract documents. Decisions of the architect shall be rendered in all cases as provided for under the general conditions of the contract, but no decision of the architect shall deprive the owner or the contractor of any form of redress which may be available under the laws of the State of Georgia to contracting parties. Any decision of the architect shall be final and binding on the contractor in the absence of written notice of protest from the contractor received by the owner by registered mail within twelve days from the date of receipt of the decision of the architect [See also Articles E-3 and E-39]. The owner shall have twelve days from the date of receipt of a protest within which to investigate and make reply. There is no provision under the contract for execution of work "under protest". A protest must contain (1) the date of the decision of the architect to which exception is taken, (2) a statement of the issue or issues, (3) a citation of the provision or provisions of the contract documents which govern the issue or issues, (4) a summary of the logical principle or principles on which the protest is based, and (5) a summary of the legal grounds for taking exception.

(d) *Shall be based on the Legal Assertions of the Contractor.* - The contractor shall assert claims solely on the basis of (a) principles of logic and (b) principles of law to which the contractor, himself, prescribes. He shall not protest a decision or request a conference on the ground merely that a subcontractor, materialman, or supplier has protested to the general contractor. Accordingly, the contractor shall file no claim nor shall he make a request for a conference with the owner regarding a claim except as it shall be for the purpose of asserting in the exercise of the contractor's best judgment such views, requests, and legal propositions as he deems the contractor is entitled to maintain independently of any right of any subcontractor, materialmen, or supplier against the general contractor. [See also Article E36]

(e) *Conference with the Owner.* - (1) *Effect of.* - The owner has no legal obligation to confer orally with the contractor about the terms of the contract or its performance and may insist that all transactions and all intercourse shall be in writing. Agreement of the owner to confer with a contractor shall not be construed as an offer of the owner to reconsider or alter the owner's policies, practices, procedures, or prior position, not shall such agreement constitute a waiver of any right or defense of the owner. Such a conference is without prejudice to any rights or defenses of the owner. After the conference there will be nothing to confirm since the owner does not engage itself to do or not do a thing by agreeing to confer with the contractor. It is expressly agreed that no conference between the contractor and the owner shall cure any failure of the contractor to give any notice nor shall it cure any breach of any time limit or revive any right in the contractor.

(2) *Conditions precedent to.* - A proposal from the contractor for a conference in respect to (a) dispute, (b) a controversy, or (c) an interpretation or construction of any provision of the contract documents shall contain (a) a statement of the issue or issues, (b) a citation of the provision or provisions of the contract documents which govern the issue or issues, (c) a precise summary of the logical principle or principles on which the issue or issues are based, and (d) a summary of the legal grounds which the contractor takes with respect to the issue or issues.

(3) *Basis for and Terms of.* - All conferences between the owner and the contractor shall be pursuant to, under the terms of, and in accordance with this article of the general conditions.

NOTES:

4. All Claims, disputes and other matters in question between the Contractor and the Owner arising out of, or relating to, this Agreement or the breach therefore in the event that the Contractor and the Owner are unable to resolve the dispute through negotiation, shall be tried before a superior court judge to a jury trail and agrees that the venue of the action will be in Richmond County, Georgia. Any legal proceeding arising out of, or relating to, this agreement shall include, by consolidation, joiner, or joint filing, any additional person or entity to the final resolution of the matter in controversy.

   The Contractor hereby further agrees that, should any subcontractor or supplier to the Contractor file a claim concerning any dispute or controversy, which involves the allegations of any acts, error or omissions of the Contractor, then the Contractor shall hold the Owner harmless from any and all costs incurred to, legal costs and attorney's fees and payment of any judgment against the Owner.

   Should the Owner employ an attorney to enforce any of the provisions hereof, to protect its interest in any matter arising under this Agreement, or to collect damages for breach of this Agreement, the Contractor agrees to pay the Owner all reasonable costs, charges, expenses, and attorney's fees expended or incurred therein.

A**rticle E-17. Deductions for Uncorrected Work.** - If the architect and owner deem it expedient to correct work injured or done not in accordance with this contract, an equitable deduction from the contract price shall be made therefore; but there is not duty on the part of the owner to accept any work injured or done not in accordance with the methods and materials designated in the contract documents, nor does the contractor demand that there shall be acceptance of work injured or done not in accordance with the methods and materials designated in the contract documents.

NOTES:

Article E-18. Delays and Extensions of Time. - (a) *Grounds.* - If the contractor is delayed at any time in the progress of the work by any act or neglect of the owner or the architect, or of any employee of either, or by any separate contractor employed by the owner, or by changes ordered in the work, or by strikes, lockouts, pickets, inclement weather, unforeseeable subsurface conditions, fire, unusual delay in transportation, unavoidable casualties, or any causes beyond the contractor's control, or by any cause which the architect shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the architect may decide.

The below monthly anticipated adverse weather calendars. Schedule will be used as a guide for the architect's decisions regarding inclement weather.

MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS SCHEDULE

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(5)	(5)	(4)	(2)	(3)	(3)	(4)	(3)	(3)	(3)	(3)	(5)

1. The above schedule of anticipated adverse weather will constitute the base line for monthly (or portion thereof) weather time evaluations. Upon acknowledgement of the Notice to Proceed and continuing throughout the contract on a monthly basis, actual adverse weather days above. The term actual adverse weather days shall include days impacted by actual adverse weather days.

2. The number of actual adverse weather days shall be calculated chronologically from the first to the last day in each month. Once the number of actual adverse weather days anticipated in paragraph 1) above has been incurred, the architect will examine any subsequently occurring adverse days to determine whether the contractor is entitled to a time extension. These subsequently occurring adverse weather days must prevent work for 50 percent or more of the contractor's work day and delay work critical to the timely completion of the project. The architect will convert ant delays meeting the above requirements to calendar days and use this as a guide in making decisions regarding request for delays and extension of time for inclement weather.

3. The contractor's schedule must reflect the above anticipated adverse weather delays on all weather dependent activities.

(b) *Filing of Claim* - **No such extension shall be made for delay occurring more than ten (10) days before claim therefore is made in writing to the architect with copy to the owner**. In the case of a continuing cause of delay, only one claim is necessary, but no claim for a continuing delay shall be valid unless the contractor, within ten days from the cessation of the delay, shall have given notice in writing to the architect, with copy to the owner, as to the amount of additional time claimed.

(c) *Delay in Furnishing Drawings.* - [See also Article E-5] If no schedule or agreement stating the dates upon which drawings or approval of shop drawings shall be furnished is made, then no claim for delay shall be allowed on account of failure of the architect to furnish drawings or approval of shop drawings until two weeks after demand therefore and not then unless such claim be reasonable.

(d) *Damages.* - [See also Article E-15] This article does not exclude the recovery of damages for delay by either party under other provisions in the contract documents.

-- [See also Articles E-1, E-3, E-14, E-26, E-46, and E-50]

NOTES:

1. Historical climatic conditions for the period during which work is to be performed must be considered by the Contractor before the proposal is submitted. Weather conditions shall be a cause for extension of time only if the historical conditions of rain, snow, or ice are exceeded for the period of the work and effect the Critical Path of Construction. Documentation of the presence of unusually severe weather, the extent to which the Contractor was then working, and how the abnormal weather condition had an adverse affect on the scheduled construction must be submitted with any notice request in applying for a time extension due to this cause.

2. No claims for extension of time will be considered when based on delays caused by conditions existing at the time bids were received, and of which the Contractor might be reasonably excepted to have full knowledge at the time of bidding, or upon delays caused by failure on the part of the Contractor to anticipate properly the requirements of the work contracted for as to materials, labor and equipment. All claims for extension of time shall be made in writing to the Program Manager and/or Architect.

3. In the event Contractor is delayed at any time in the progress of the work, extension of time shall be the Contractor's **sole remedy** for any such delay (except for Contractor's right to terminate this Agreement pursuant to any application provisions of the Owner-Contractor Agreement), unless the same shall have been caused by acts constituting intentional interference by the Owner with Contractor's performance of the work and where and to the extent that such acts continue after the Contractor's notice to the Owner of such interference. **Written notice** of intentional interference by the Owner must be given within twenty-one (21) days of the occurrence or the claim is waived. The Owner's exercise of any of it's rights under any application provisions of the Owner-Contractor Agreement relating to Changes in the work, regardless of the extent of number of changes in the work, or requirement of correction or re-execution of any of the work, shall not under any circumstances by construed as intentional interference with the Contractor's performance of the work.

4. When the Contract time has been extended for causes as such extension of time shall not be considered as justifying extra compensation to the Contractor for administrative costs.

Article E-19. Correction of Work Prior to Contractor's Monthly Application for Payment –

(a) *Orders of Condemnation.* - The contractor shall remove from the premises within the space of time designated in orders of condemnation all work condemned by the architect as failing to conform to the contract, whether incorporated in the work or not, and the contractor shall promptly replace and re-execute the work in accordance with the contract and without expense to the owner and shall bear the expense of making good all work of other contractors destroyed by such removal or replacement. The contractor shall supply any omitted work and perform all unexecuted work within the space of time fixed by the architect in orders of condemnation. [See also Article E-1(i)]

(b) *Remedy of the Owner for Breach of Order of Condemnation* - If the contractor does not make good a deficiency within the reasonable space of time fixed in an order of condemnation, the owner may -

(1) *Remove the condemned work* and store it at the expense of the contractor. If the contractor does not pay the expenses of such removal and storing within ten days after receipt of written demand of the owner, the owner may upon three days' notice in writing to the contractor sell such materials at private sale or at auction and shall account for the net proceeds thereof after deducting all proper costs incurred by the owner, and

(2) *Supply omitted work, performs unexecuted work, replace and re-execute* work not done in accordance with the methods and materials designated in the contract documents and deduct the cost thereof from any payment then or thereafter due the contractor, *Provided:* That the architect shall approve the amount charged to the contractor. [See also Article E-21]

The remedies stated in this article are in addition to the remedies otherwise available to the owner, do not exclude such other remedies, and are without prejudice to any other remedies. Time limits stated in orders of condemnation are of the essence of the contract. Unless otherwise agreed to by the owner in writing, the making good of condemned work shall physically commence at the site in not more than seven days after receipt of the order of condemnation except that in case of emergency correction shall physically commence at the site at once and except that the contractor shall in any even physically commence the correction at the site early enough to complete within the space of time allowed in the order of condemnation. The owner will give prompt consideration to reasonable requests for delay in commencement of the making good of orders of condemnation. The making good of condemned work shall be completed within the space of time allowed in the order of condemnation unless the contractor shall have requested from the architect an increase in the amount of time allowed and the architect shall have given notice to the contractor in writing, with copy to the owner, stating the additional amount of time, if any, allowed.

(c) *Notice of Correction from Contractor.* - The contractor shall give prompt notice in writing to the architect, with copy to the owner, upon completion of the correction of any work, the supplying of any omission of any work or materials or the performance of any unexecuted work condemned by the architect. 1] In the absence of such notice, it shall be and is presumed under this contract that there has been no correction, supplying, remedy, or performance of unexecuted work.

NOTES:

Article E-20. Correction of Work after Final Payment. - Neither (1) the final certificate, (2) nor any decision of the architect, (3) nor payment, (4) nor any provision in the contract shall relieve the contractor of responsibility for faulty materials, faulty workmanship, or omission of contract work, and he shall remedy any defects or supply any omissions resulting therefrom and pay for any damage to other work resulting therefrom. The Architect shall give notice of observed defects or omissions with reasonable promptness. The contractor shall within the space of time designated in orders of condemnation and without expense to the owner, correct, remedy, replace, re-execute, supply omitted work, or remove from the premises all work condemned by the architect. The contractor shall give prompt notice in writing to the architect, with copy to the owner, upon completion of the supplying of any omitted work or the correction of any work condemned by the architect. In the absence of said notice, it shall be and is presumed under this contract that there has been no correction of the condemned work or supplying of omitted work. If the contractor does not remove, make good the deficiency, correct, or remedy faulty work, or supply any omitted work within the space of time designated in orders of condemnation without expense to the owner, the owner, ten days' notice in writing to the contractor, may remove the work, correct the work, remedy the work or supply omitted work at the expense of the contractor.

In case of emergency involving health, safety of property, or safety of life the owner may proceed at once. Correction of defective work executed under the plans and specifications or supplying of omitted work whether or not covered by warranty of a subcontractor or materialman, remains the primary direct responsibility of the contractor. The foregoing obligation of the contractor shall remain in effect until the same shall have been extinguished by operation of the statute of limitations. An additional security for the fulfillment of such obligations, but in no way limiting the same, the contractor warrants and guarantees (1) that all work executed under the plans and specifications shall be free from defects of materials or workmanship for a period of **TWO YEARS** from the date of the final certificate of the architect, and (2) that for not less than **TWO YEARS** from the date of the final certificate of the architect, or for such greater space of time as may have been designated in the specifications, products of manufacturers shall be free from defects of materials or workmanship. Whenever written guaranties or warranties are called for, the contractor shall furnish the aforesaid for such period of time as may be stipulated. The aforesaid instruments shall be in such form as to permit direct enforcement by the owner against any subcontractor, materialman, or manufacturer whose guaranty or warranty is called for, and the contractor agrees that...

(a) The contractor is jointly and severally liable with such subcontractors, materialmen, or manufacturers.

(b) The said subcontractors, materialmen, or manufacturers are agents of the contractor for purposes of performance under this article, and the contractor, as principle, ratifies the warranties or guaranties his aforesaid agents by the filing of the aforesaid instruments with the owner. The contractor as principal is liable for the acts or omissions of his agents.

(c) Service of notice on the contractor that there has been breach of any warranty or guaranty will be sufficient to invoke the terms of the instrument, *Provide:* That the owner shall have furnished the contractor with a copy of notice to be served on the subcontractor, materialman, or manufacturer.

(d) The contractor will bind his subcontractors, materialmen, and manufacturers to the terms of this article.

The calling for or the furnishing of written warranties or guaranties shall in no way limit the contractual obligation of the contractor as set forth hereinabove. The remedies stated in this article are in addition to the remedies otherwise available to the owner, do not exclude such other remedies, and are without prejudice to any other remedies.

-- [See also Articles E-1(i), E-25, and E-60]

NOTES:

Article E-21. The Owner's Right to Work. - If the contractor should neglect to prosecute the work properly or fail to perform any provision of this contract, the owner, after three days' written notice to the contractor may without prejudice to any other remedy he may have make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the contractor. *Provided:* However, that the architect shall approve the amount charged to the contractor [See also Articles E-19(b) (2) and E-22]

NOTES:

1. The Owner reserves the right to perform any work on the site, whether within or without the scope of this contract, necessary to correct any conditions which at the sole discretion of the Owner pose a hazard to the health or safety of pupils, teachers, administrators, or the general public. Such work will only be done on an emergency basis. If practical under the circumstances, the Contractor shall be given notice of any such conditions and given a reasonable opportunity to correct them. If work is done by the Owner pursuant to this subparagraph which is necessitated by any act or failure to act of the Contractor, the costs associated with such work shall be deducted from any sums due the Contractor and a written Change Order adjusting the contract sum will be issued.

Article E-22. Right of the Owner to Terminate Contract. - In the event that any of the provisions of this contract are violated by the contractor or by any of his subcontractors, the owner may serve written notice upon the contractor and the surety of the owner's intention to terminate the contract, such notices to contain the reasons for such intention to terminate the contract, and unless within ten (10) days after the serving of such notice upon the contractor, such violation or delay shall cease and satisfactory arrangement of correction be made, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination the owner shall immediately serve notice thereof upon the surety and the contractor, and the surety shall have the right to take over and perform the contract; *Provided, however*, that if the surety does not commence performance thereof within ten (10) days from the date of the mailing to such surety of notice of termination, the owner may take over the work and prosecute the same to completion by contract or by force account for the account and at the expense of the contractor and the contractor and his surety shall be liable to the owner for any excess cost occasioned the owner thereby, and in such event the owner may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and necessary therefore [See Article E-15 for description of "force account"] [See also Article E-26]

NOTES:

Article E-23. Contractor's Right to Stop Work or Terminate Contract. - If the work should be stopped under an order of any court or other public authority for a period of ninety (90) days through no act or fault of the contractor or by anyone employed by him, or it the architect should fail to issue any certificate for payment within fourteen days after it is due, or if the owner should fail to pay to the contractor within fourteen days of its maturity and presentation any sum certified by the architect, then the contractor may, upon seven day's written notice to the owner and the architect, stop work or terminate this contract and recover from the owner payment for all work executed and any loss sustained upon any plant or materials and reasonable profit and damages.

NOTES:

Article E-24. Application for Payments. - (a) *Periodical Estimates and Receipts.* - The contractor shall submit to the architect in accordance with a form to be supplied by the owner an application (sometime herein designated "periodical estimate"] for each payment, and, if requested by the owner or architect, receipts or other vouchers showing his payments for materials and labor, including payments to subcontractors as required by Article E-37. [See also Articles E-32 and E-50]

(b) *Initial Breakdown and Periodical Payments.* - If payments are made on valuation of work done, such application shall be submitted at least ten days before each payment falls due, and the contractor shall, before the first application, submit to the architect a schedule of values of the various parts of the work, including quantities, aggregating the total sum of the contract, divided in such manner as to facilitate payments to subcontractors in accordance with Article E-37, on a form to be furnished by the owner with a complete breakdown of the contract price so arranged and so itemized as to meet the approval of the program manager and/or architect and, if requested, supported by such evidence as to its correctness as the architect may direct.
This schedule designated herein the "initial breakdown" (specimen of which will be supplied to any bidder"), when approved by the architect shall be used as a basis for certificates of payment, unless it be found to be in error. In applying for payments, the contractor shall submit a statement based upon this schedule on a periodical estimate form to be supplied by the owner (specimen of which will be supplied to any bidder), and, if requested by the architect or owner, itemized in such form and supported by such evidence as the architect or owner may direct showing the contractor's right to the payment claimed on the periodical estimate.

(c) *Materials stored.* - If payments are made on account of materials delivered and suitably stored at the site but not incorporated in the work, they shall, if required by the owner or the architect, be conditional upon submission by the contractor of bills of sale or such other procedure as will establish the owner's title to such material or otherwise adequately protect the owner's interest. {See also Articles E-28 and E-41] The contractor is responsible for the existence, protection, and, if necessary, replacement of materials until execution of the final certificate of the architect. [See also Articles E-12, E-25, and E-41]

NOTES:

1. The Form of the Application for Payment shall be Georgia State Department of Education Reimbursement Request Form DE 0263, July 1982, with AIA G703, Continuation Sheet, and latest edition.

REIMBURSEMENT REQUEST NO _____
(PROJECT NO. and (NAME)_____

CERTIFICATE OF THE CONTRACTOR OR HIS DULY AUTHORIZED REPRESENTATIVE

To the best of my knowledge and belief, I certify that all items, units, quantities and prices of work and material shown on this Reimbursement Request No. _____ are correct: that all work has been performed and materials supplied in full accordance with the terms and conditions of the contract documents between _____

(Owner)

and _____dated _____

and all authorized changes thereto; and that the following is a true and correct statement of the contract amount up to and including the last day of the period covered by this estimate and that no part of the "amount due this estimate" have been received.

ORIGINAL CONTRACT AMT. $ _____; ADJUSTED CONTRACT AMT. ----- $ _____

(a) Total amount earned for work in place (original contract) ----------$_____

(b) Total amount earned for work in place (change orders) ----------$_____

(c) Value of materials stored on site ----------$_____

(d) Total amount earned [(a) plus (b) plus (c)] ----------$_____

(e) Amount retained (10%) ----------$_____

(f) Total earned less retained percentage [(d) minus (e)] ---------- $_____

(g) Total previously approved ---------- $_____

(h) Amount due THIS REQUEST FOR CONTRACTOR [(f) minus (g)] ----------$ _____

(I) Amount due THIS REQUEST FOR ARCHITECT ----------$ _____

(j) TOTAL AMOUNT REQUESTED [(h) plus (I)] ----------$ _____

I further certify that all claims outstanding against the undersigned Contractor for labor, materials, and expendable equipment employed in the performance of said contract have been paid in full in accordance with the requirements of said contract, except such outstanding claims as are listed below or on the attached sheet, which statement contains all claims against the contractor which are not yet paid, including all disputed claims and any claims to which the contractor has or will assert any defense.

I further certify that all the materials indicated on this Reimbursement Request as being stored on the site, but not yet incorporated into the building, have been purchased, delivered, and are now stored on the site for future incorporation into the building, and until so incorporated the title to same is, upon payment of this statement, vested in the Owner. Furthermore, the undersigned Contractor assumes full responsibility for the existence, protection, and, if necessary, replacement of the above mentioned materials until the completion of this contract.

Contractor _____ By: _____

Date _____ Title _____

CERTIFICATE OF THE PROGRAM MANAGER

I certify that I have verified this Reimbursement Request and that to the best of my knowledge and belief it is a true and correct statement of work performed and materials supplied by the Contractor and that the Contractor's certified statement of his account and the amount due him is correct and just and that all work and material in this Reimbursement Request have been performed in full accordance with the terms and conditions of the contract documents and authorized thereto.

Name _____ Program Manager Inspector.
Date:_____

CERTIFICATE OF THE SUPERVISING ARCHITECT

I certify that I have verified this Reimbursement Request and that to the best of my knowledge and belief it is a true and correct statement of work performed and materials supplied by the Contractor and that the Contractor's certified statement of his account and the amount due him is correct and just and that all work and material in this Reimbursement Request have been performed in full accordance with the terms and conditions of the contract documents and authorized thereto.

Name _____ Supervising Architect.
Date:_____

RICHMOND COUNTY BOARD OF EDUCATION
FACILITIES AND MAINTENANCE DEPARETMENT
2956 MIKE PADGETT HWY
AUGUSTA, GEORGIA 30906

WORK PERFORMED TO DATE

In support of Periodical Estimate for Partial Payment No._____
For the Period from _____ through _____ inclusive.
Project No., Improvement No., School _____
Contractor's Name and Address _____
_____

WORK INCLUDED IN ORIGINAL CONTRACT

DETAILED ESTIMATE				***WORK PERFORMED TO DATE***			
Item Number	Number & Kind of Units	Unit Price	Estimated Cost	Number of Units	Amount Earned to Date	Value of Complete Work	Percent Complete
A. Total Amount of Original Contract							
B. Plus or Minus Total Previously Approved C.O.'s No. Inc.							
C. Plus or Minus C.O.'s include. approved during period covered by this estimate							
D. Total Net Adjusted Amount							

SCHEDULE OF CHANGE ORDERS

In support of Reimbursement Request No. _____

Project Name _____ Period Ending _____

Contractor _____

CHANGE ORDERS		ADDITIONS			DEDUCTIONS
Number (1)	Date (2)	Authorized Amount (3)	Amount This Period (4)	Completed Previous Periods (5)	Authorized Deductions

Article E-25. Certificates of Payments. - (a) *Issuance.* - If the contractor has made application for payment as provided under Article E-24, the architect shall not later than the date when each payment falls due issue to the contractor a certificate for such amount as he decides to be properly due or state in writing his reasons for withholding a certificate.

(b) *Effect.* - No certificate issued nor payment made to the contractor nor partial or entire use or occupancy of the work by the owner shall be an acceptance of any work or materials not in accordance with the contract documents. [See also Article E-20] The making of the final payment shall constitute a waiver of all claims by the owner other than those arising from unsettled liens, from faulty work appearing after final payment, for from requirements of the specifications or drawings. Acceptance of the final payment shall operate as and shall be a release to the owner from all claims of any kind or character under the contract except for such specific amount or amounts as may have been withheld to cover the fair value of any incomplete work which has been certified by the architect under the provision of Paragraph (d) of Article 5 of the form of agreement as incomplete through no fault on the part of the contractor.

(c) *Date and Rate of Payment.* - Progress payments will be made by the owner to the contractor in accordance with Article 4 of the form of agreement. Final payments will be made in accordance with Article 5 of the form of agreement. The date and rate of payment are subject to Article E-26. Sums retained pursuant to the present article are and remain the property of the owner until such time as the contractor shall have become entitled to receive payment for such retainage by (a) furnishing the remainder of the *quid pro quo* under the contract and (b) complying in full with the terms of the contract.

(d) *Interest.* - Should the owner fail to pay the sum named in any certificate of the architect upon demand when due, the contractor shall receive, in addition to the sum named in the certificate, interest thereon at the legal rate in force at the time during construction, not at the place of building, PROVIDED: That the contractor shall have given the owner written notice of the date on which payment was properly due, and no interest shall be payable if the owner makes payment within three days after receipt of the aforesaid notice from the contractor. [See also Articles E-24, E-26, and E-46]

NOTES:

Article E-26. Payments Withheld. - The program manager and/or architect may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate to such extent as may be necessary to protect the owner from loss on account of:

(a) Defective work not remedied. [See also Article E-19]

(b) Claims filed or reasonable evidence indicating probable filing of claims.

c) Failure of the contractor to make payments properly to subcontractors or for materials or labor, [See also Articles E-9 and E-37]

(c) A reasonable doubt that the contract can be completed for the balance then unpaid.

(d) Damage to another contractor or to some third party. [See also Article E-12]

(e) Failure to supply or update monthly critical path schedule or failure to maintain a rate of progress in accordance with the original construction critical path program schedule. [See also Articles E-1(i), E-25(c), and E-46]

(f) Failure to supply enough skilled workmen or proper materials. Failure to supply requested related contract documents, papers, forms, or to carry out contract procedures as outlined in plans and specifications or requested by Program Manager and/or Architect. [See also Articles E-1 and E-19]

When the above grounds are removed, payment shall be made for amounts withheld because of them. At the option of the owner adherence of a periodical estimate. No omission on the part of the owner to exercise the aforesaid option shall be construed to be a waiver of breach of the construction progress schedule of acquiescence therein, and the owner may exercise its option from time to time and as often as may be expedient.

NOTES:

Article E-27. Insurance and Hazards. - (a) *Hazards.* - The contractor shall be responsible from the time of his signing the form of agreement or from the time of the beginning of the first work, whichever shall be earlier, for all injury or damage of any kind resulting from the work to persons or property regardless of who may be the owner of the property. [See also Article E-12] In addition to the liability imposed upon the contractor on account of bodily injury (including death) or property damage suffered through the contractor's negligence, which liability is not impaired or otherwise affected hereby, the contractor assumes the obligation to indemnify and hold harmless the Owner and Architect and their officers, agents, employees and representatives from and against any and all claims, damages, law suits, suits judgments, expenses, and costs, including attorney's fees, arising out of or resulting from bodily injury, sickness, disease or death, or to injury to or destruction of property including the loss of use or omission of the Contractor or any subcontractor or anyone directly or indirectly employed by them or anyone for whose acts any of them may be liable, regardless of whether or not such bodily injury, sickness, disease or death or injury to or destruction of property is caused in whole or in part by a party indemnified hereunder.

In any and all claims, demands, or judgments against the Owner or the Architect or any of their officers, agents, employees, or representatives by any employee of the contractor or any subcontractor, the indemnification obligation herein set forth shall not be limited in any way by a limitation on the amount or type of damages, compensation or benefit acts or other employee benefit acts, it being the intent of the parties that the indemnification therein given the owner and the architect shall be full and complete.

(b) *Insurance* - Proof of insurance coverage and furnishing of insurance policies shall be as shown herein below.

(1) Compliance with *Workmen's Compensation Laws.* - The contractor agrees to comply with the provisions of the workmen's compensation laws of the State of Georgia and to require all subcontractors likewise to comply. The contractor agrees that, prior to the beginning of the work by the contractor the contractor will furnish the following to the owner: Certificate from insurance company showing issuance of workmen's compensation coverage for the State of Georgia or a certificate from Georgia Workmen's Compensation Board showing proof of ability to pay compensation directly. The contractor agrees that the foregoing provision respecting workmen's compensation is also applicable to subcontractors.

(2) *Endorsement on Builder's Risk Policy.* - General Contractor shall purchase and maintain during the full course of construction "all-Risk" Builders Risk Insurance Coverage which names the Contractor, Owner, the Architect, and Engineers as co-insured. There shall be attached to and made part of the Insurance Policy for Builder's Risk an endorsement of the insurance company in accordance with the specimen shown below.

(3) *Endorsement of Casualty Policies.* - There shall be attached to and made a part of every CASUALTY INSURANCE POLICY an endorsement of the insurance company in accordance with the specimen shown below:

ENDORSEMENT -- BUILDER'S RISK

Attached to and forming part of Policy No. _____ of the
(Number of Policy)
_____ Insurance Company, issued at
(Name of Insurance Company)
its _____, _____ Agency. Date of Endorsement _____
(City) (State)

No. of (Improvement) (Project) Richmond County Board of Education, , 864 Broad Street, Augusta, Georgia 30901 In consideration of the premium for which the policy is written and proper rate adjustment when applicable, the insurance company agrees as follows:

Item (1) Furniture and equipment may be delivered to the insured premises and installed in place ready for use, and said delivery and installation of furniture and equipment shall in no way diminish, change, alter, or otherwise affect the coverage and protection afforded the insured under said policy.

Item (2) Occupancy shall in no way diminish, change, alter, or otherwise affect the coverage and protection afforded the insured under said policy. The insured shall give notice to insurance company of any occupancy or partial occupancy.

Item (3) The insurance company recognizes the right of the owner of the insured premises to perform other work in connection with construction operations insured under this policy and agrees that performance of other work by the said owner, by agents of the said owner, by the lessee of the owner, by contractors employed by the said owner, or by contractors employed by the lessee of the said owner shall in no way diminish, change, alter, or otherwise affect protection afforded under the said policy.

Item (4) This policy shall not be canceled, changed [which includes renewal], allowed to lapse or allowed to expire until ten days after the [see invitation to bid and insert name of owner], Richmond County Board of Education, 864 Broad Street, Augusta, Georgia, 30901, has received written notice thereof as evidenced by return receipt of registered letter. It is agreed that the said notice shall be valid only at to such improvements or projects as shall have been designated by number in said notice and that as to any improvement or project not designated by number in the said notice, coverage shall be continued in full force and effect.

Item (5) Any other provisions of the agreement to the contrary notwithstanding, coverage under this policy shall automatically terminate thirty-six months from the date shown below.

The foregoing insurance provisions have been incorporated into by reference and are hereby made a part of insurance policy No. _____ , this _____ day of _____, 19 _____

_____
(Name of Company)

_____
(Signature of Authorized Representative)

(3) Endorsement of Casualty Policies: There shall be attached to and made part of every Casualty Insurance Policy and Endorsement of the insurance company in accordance with the specimen shown below:

SPECIMEN
ENDORSEMENT -- CASUALTY

Attached to and forming a part of Policy No. _____ of the
(Number of Policy)
_____Insurance Company, issued at
(Name of Insurance Company)
its _____, _____ Agency. Date of Endorsement _____
(City) (State)
No. of (Improvement) (Project) _____ .

In consideration of the premium for which the policy is written and proper rate adjustment when applicable, the insurance company agrees as follows:

Item (1) This policy shall not be canceled, changed (which includes renewal), allowed to lapse, or allowed to expire until ten days after the (see invitation to bid and insert name of owner),Richmond County Board of Education, 864 Broad Street, Augusta, Georgia 30901, has received written notice thereof as evidenced by return receipt of registered letter or until such time as other valid and effective insurance coverage acceptable in every respect to the owner and providing equal protection called for in the policy shown below shall have been received, accepted, and acknowledged by the owner. It is also agreed that the said notice shall be valid only as to such improvements or projects as shall have been designated by number in said notice and that as to any improvement or project not designated by number in the said notice, coverage shall be continued in full force and effect.

Item (2) Any other provisions of the agreement to the contrary notwithstanding, coverage under this policy shall automatically terminate thirty-six months from the sate shown below.

The foregoing insurance provisions have been incorporated into by reference and are hereby made a part of insurance policy No. _____, this _____ day of _____, 19 _____

_____
(Name of Company)

_____
(Signature of Authorized Representative)

(4) Ratification of Agent's Endorsement. - In furnishing the insurance policy or in furnishing proof of coverage, as the case may be, the casualty insurance carrier shall upon request submit evidence satisfactory to the owner that the agent of the carrier who executed an endorsement had the authority to make changes in the terms of the insurance policy which are binding on the insurance company.

(5) Policies, Certificates, Limits and Disposition of Documents. - The contractor shall obtain at his expense insurance with limits as shown hereinbelow unless the contractor desires to broaden the limits and obtain more protection.

[1] OWNER'S PROTECTIVE LIABILITY INSURANCE -- Taken out in name of the owner as insured. [See Invitation to Bid for exact legal name of owner.]
Bodily injury, including death - limits of $300,000.00 for each person and $500,000.00 for each accident.
Property damage - limits of $100,000.00 for each accident and $300,000.00 for the aggregate of operations.
DISPOSITION: Original policy must be deposited with owner prior to commencement of work.

[2] CONTRACTOR'S PROTECTIVE LIABILITY INSURANCE - Taken out in the name of the contractor.
Bodily injury, including death - limits of $300,000.00 for each person and $500,000.00 for each accident.
Property damage - limits of $100,000.00 for each accident and $300,000.00 for the aggregate of operations.
DISPOSITION: Certificate of insurance must be sent to owner prior to commencement of work.

[3] CONTRACTOR'S PUBLIC LIABILITY INSURANCE - Taken out in the name of the contractor.
Bodily injury, including death - limits of $300,000.00 for each person and $500,000.00 for each accident.
Property damage - limits of $100,000.00 for each accident and $300,000.00 for the aggregate of operations.
DISPOSITION: Certificate of insurance must be sent to owner prior to commencement of work.

[4] BUILDER'S RISK INSURANCE - Payable to the contractor and owner, as their interests may appear, upon the entire structure and upon all materials in or adjacent thereto which are to be made a part of the insured structure to 100% of the insurable value thereof covering fire, extended coverage, vandalism and malicious mischief.
DISPOSITION: Original policy must be deposited with owner prior to commencement of work.

(6) *Acceptability of Insurers to Owner.* - No insurance will be acceptable unless written by a company licensed by the State Insurance Commissioner to do business in Georgia at the time the policy is issued, and the company must in addition be acceptable to the owner. To avoid inconvenience, any general contractor or subcontractor must get in touch with the owner to determine whether the insurance companies he expects to use is or are acceptable to the owner. All policies and certificates must be signed or countersigned, as the case may be, by resident Georgia agents.

(c) *Termination of Obligation to Insure.* - Unless otherwise expressly provided to the contrary, the obligation to insure as prescribed herein shall not terminate until the architect shall have executed the final certificate. [See also Articles E-20, E-24, E-29, and E-71 of general conditions and Article 5 of Form of Agreement between Contractor and Owner].

(d) *Competence of Insurers.* - The Contractor is responsible for any delay resulting from the failure (1) of his insurance carriers and (2) of insurance carriers of his subcontractors to furnish proof of proper coverage in (1) the prescribed form, (2) the prescribed manner, and (3) in good season.

NOTES:

1. The Contractor shall furnish six (6) copies of certificate of insurance which shall specifically set forth evidence of all coverage required. The form of the certificate shall be AIA Document G705 or the Accord Form. The Contractor shall furnish copies of any endorsements that are subsequently issued amending coverage or limits. This policy is to include the clause, "The policies herein referenced to are not cancelable or subject to change of coverage by the insurer unless Hanscomb/GMK has received ten (10) days written notice as evidenced by return receipt of registered or certified letter."

2. Property insurance on the entire project to cover risks of direct physical loss subject to policy conditions and exclusions ("all-risks coverage") to the full insurable value therefore shall be carried by the Contractor, and a certificate of compliance shall be furnished through the Program Manager. This insurance shall have a $1000 "deductible" on any insured loss and that the amount of this deductible and any other losses not specifically covered under the Owner's policy shall be borne by the General Contractor and/or his subcontractors. Specifically that the insurance does not cover any loss from theft or burglary, nor does it cover loss of any tools, equipment, scaffolding, staging, towers, forms, machinery, etc. owned or rented by the prime contractors, or subcontractors which are not intended to become a part of the project; but does cover damage to the building of contents because of theft or burglary

3. The General Contractor and/or his subcontractors must report any loss to the Owner (who in turn will notify the Insurance Agency as soon as the loss occurs in order that damage be assessed before job conditions are disturbed. Formal claims against this policy should be submitted within 14 days after occurrence.

Article E-28. Affidavits. - Before receiving retainage [See also E-24 and E-32] the contractor will be required to furnish non-influence affidavit and statutory affidavit in the exact form as shown hereinbelow:

SPECIMEN

NON-INFLUENCE AFFIDAVIT

COUNTY OF _____

STATE OF _____

I do solemnly swear on my oath that as to the contract dated _____, 19 _____,

between _____ and the [insert name of owner] I have no knowledge of the exertion of any influence or the attempted exertion of any influence on the firm on behalf of which this affidavit is made in any way, manner, or form in the purchase of materials, equipment, or other items involved in construction, manufacture, or employment of labor under the aforesaid contract by any employee, officer, or agent of [insert name of owner], or any person connected with the State Government of Georgia in any way whatsoever.

This _____ day of _____, 19 _____ .

_____ (L.S.)
Signature

_____
Title

_____
Firm

COUNTY OF _____

STATE OF _____

Personally before me, the undersigned authority, appeared _____, who is known to me to be an official of the firm of _____ , who, after being duly sworn, stated on his oath that he had read the above statement and that the same is true and correct.

_____
Notary Public

My commission expires _____

This _____ day of _____, 19 _____

LIEN RELEASE FORM

COUNTY OF _____
STATE OF _____
FROM_____
(Contractor)

To: [insert name of owner], Owner
Contract entered into the _____ day of _____, 19 _____ , between the above-mentioned parties for the construction of a _____ at_____

KNOW ALL MEN BY THESE PRESENTS:

1. The undersigned hereby certifies that all work required under the above contract has been performed in accordance with the terms thereof, that all materialmen, subcontractors, mechanics, and laborers, have been paid and satisfied in full, and that there are no outstanding claims of any character (including disputed claims or any claims to which the contractor has or will assert any defense) arising out of the performance of the contract which have not been paid and satisfied in full except as listed hereinbelow:
[*Instructions* - ENTER THE WORD "NONE" OR LIST THE NAMES OF CLAIMANTS AND THE AMOUNT CLAIMED BY EACH]

2. The undersigned further certifies that to the best of his knowledge and belief there are no unsatisfied claims for damages resulting from injury or death to any employees, subcontractors, or the public at large arising out of the performance of the contract, or any suits or claims for any other damage of any kind, nature, or description which might constitute a lien upon the property of the owner.

3. The undersigned makes this affidavit for the purpose of receiving final payment in full settlement of all claims against the owner arising under or by virtue of the contract, and acceptance of such payment is acknowledged as a release of the owner from any and all claims arising under of by virtue of the contract.

This _____ day of _____, 19 _____

_____
Signature

_____
Title

_____
Firm

COUNTY OF _____
STATE OF _____

Personally before me, the undersigned authority, appeared _____, who is known to me to be an official of the firm of _____ , who, after being duly sworn, stated on his oath that he had read the above statement and that the same is true and correct.

_____
Notary Public

_____
My commission expires

This _____ day of _____, 19 _____

Article E-29. - Omitted

Article E-30. Performance Bond and Payment Bond. - The contractor shall furnish both a performance bond and a payment bond (Form No. 160) as set forth hereinbelow. The surety must be one which is licensed to do business in the State of Georgia and the surety must in addition be acceptable to the owner. [NOTE: To avoid inconvenience, the contractor should get in touch with the owner to determine whether the surety he expects to use is acceptable to the owner.]

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That_____
(Legal title and address of the Contractor)
_____
as Principal (hereinafter referred to as "Contractor"), and _____
_____
(Legal title and address of Surety)
_____
as Surety (hereinafter referred to as "Surety"), are held and firmly bound unto _____
as Obligee (hereinafter referred to as "Owner"), in the amount of _____
_____
(Insert contract price)
_____
Dollars ($_____), to which payment Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above bounded Principal has entered into a contract with Owner bearing date of _____ for _____
(Here insert name of work)
_____

in accordance with drawings and specifications prepared by _____
(Here insert full name and title)
_____

which said contract is incorporated herein by reference and made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Contractor shall promptly and faithfully perform and comply with the terms and conditions of said contract; and shall indemnify and save harmless the Owner against and from all costs, expenses, damages, injury or loss to which said Owner may be subjected by reason of any wrongdoing, including patent infringement, misconduct, want of care or skill, default or failure of performance on the part of said Principal, his agents, subcontractors or employees, in the execution or performance of said contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

1. The said Surety to this bond, for value received, hereby stipulates and agrees that no change or changes, extension of time or extensions of time, alteration or alterations or addition or additions to the terms of the contract or to the work to be performed thereunder, or the specifications or drawings accompanying same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change or changes, extension of time or extensions of time, alteration or alterations or addition or additions to the terms of the contract or to the work or to the specifications of drawings.

2. If pursuant to the contract documents the Contractor shall be declared in default by the Owner under the aforesaid Contract, the Surety shall promptly remedy the default or defaults or shall promptly, time being of the essence. In said notice of election, the Surety shall indicate the date on which the remedy or performance will commence, and it shall then be the duty of the Surety to give prompt notice in writing to the Owner immediately upon completion of (a) the remedy and/or correction of each default, (b) the remedy and/or correction of each item of condemned work, (c) the furnishing of each omitted item of work, and (d) the performance of the contract. The Surety shall not assert solvency of its Principal as justification for its failure to give notice of election or for its failure to promptly remedy the default or defaults or perform the contract.

3. Supplementary to and in addition to the foregoing, whenever the Owner shall notify the Surety that the Owner has notice that the Contractor has failed to pay any subcontractor, materialman, or laborer for labor or materials certified by the Contractor as having been paid for by the Contractor, the Surety shall, within 30 days of receipt of such notice, cause to be paid any unpaid amount for such labor or materials.

4. It is expressly agreed by the Principal and the Surety that the Owner, if he desires to do so, is at liberty to make inquiries at any time of subcontractors, laborers, materialmen, or other parties concerning the status of payments for labor, materials, or services furnished in the prosecution of the work.

5. The Surety agrees that other than as is provided in this bond it may not demand of the Owner that the Owner shall (a) perform any thing or act, (b) give any notice, (c) furnish any clerical assistance, (d) render any service, (e) furnish any paper or documents, or (f) take any other action of any nature or description which is not required of the Owner named herein or the legal successors of the Owner.

Signed and sealed this _____ day of _____ A.D. 19 _____

IN THE PRESENCE OF:

_____(SEAL)
(Principal)

_____ _____
(Title)

_____(SEAL)
(Surety)

_____ _____
(Title)

PAYMENT BOND

THIS BOND IS EXECUTED TOGETHER WITH ANOTHER BOND IN FAVOR OF THE OWNER AS OBLIGEE CONDITIONED UPON PERFORMANCE OF THE CONTRACT
KNOW ALL MEN BY THESE PRESENTS:

That _____
(Legal title and address of the Contractor)
_____
as Principal (hereinafter referred to a "Principal"), and _____
(Legal title and address of Surety)
_____
_____
as Surety (hereinafter referred to as "Surety"), are held and firmly bound unto_____
_____
_____

as Obligee (hereinafter referred to as "Owner"), for the use and benefit of claimants defined, hereinafter, in the

amount of _____
(Insert contract price)
Dollars $ _____), to which payment Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above bounded Principal has entered into a contract with Owner dated _____ for _____
(Insert here name of work)
in accordance with drawings and specifications prepared by _____
(Insert here full name and title)
which contract is incorporated herein by reference and made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly make a payment to all claimants as hereinafter defined, for all labor and materials supplied in the prosecution of the work provided for in said Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. The said Surety to this bond, for value received, hereby stipulates and agrees that no change or changes, extensions of time or extensions of time, alteration or alterations or addition or additions to the term of the contract affect its obligation on the bond, and it does hereby waive notice of any such change or changes, extension of time or extensions of time, alteration or alterations or addition or additions to the terms of the contract or to the work or to the specifications or drawings.

2. A claimant is defined as any subcontractor and any person supplying labor, materials, machinery, or equipment in the prosecution of the work provided for in said contract.

3. Every person entitled to the protection hereunder and who has not been paid in full for labor or materials furnished in the prosecution of the work referred to in said bond before the expiration of a period of ninety days after the day on which the last of the labor was done or performed by him, or materials or equipment or machinery was furnished or supplied by him for which such claim is made, or when he has completed his subcontract for which claim is made, shall have the right to sue on such payment bond for the amount, or the balance thereof, unpaid at the time of the commencement of such action and to prosecute such action to final execution and judgment for the sum or sums due him; provided, however, that nay person having direct contractual relationship with a subcontractor, but no contractual relationship express of implied with the contractor furnishing said payment bond, shall have the right of action upon the said payment bond upon giving written notice to said contractor within ninety days from the day on which such person did or performed the last of the labor, or furnished the last of the materials or machinery or equipment for which such claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished or supplied or for whom the labor was performed or done; provide further that nothing contained herein shall limit the right of action to said 90-day period. Notice may be served by depositing a notice, registered mail, postage prepaid, duly addressed to the contractor at any letter box under the control of the Post Office Department, or notice may be served in any manner in which the sheriffs of Georgia are authorized by law to serve summons or process. Every suit instituted under this section shall be brought in the name of the claimant without the Owner being made a party thereto. The official who has the custody of said bon is authorized and directed to furnish, to any person making application therefore who submits an affidavit that he has supplied labor or materials for such work and payment therefore has been made, or that he is being sued on any such bond, a copy of such bond and the contract for which it is given, certified by the official who has custody of said bond, this copy shall be primary evidence of said bond and contract and shall be admitted in evidence without further proof. Applicants shall pay for such certified copies and such certified statements such fees as the official fixes to cover the cost of preparation thereof, but in no case shall the fee exceed the fees which the clerks of the superior courts are permitted to charge for similar copies.

4. No action can be instituted on this bond after one year from the date of the final certificate of the architect.

5. Further, this bond shall be considered the same as a bond furnished under Section 23-1705 *rt seq.*, of the Code of Georgia, as amended, and all provisions of law pertaining to bonds furnished under said Section shall pertain hereto.

Signed and sealed this _____ day of _____ A.D. 19 _____

IN PRESENCE OF:

_____
(SEAL) (Principal)

_____
(Title)

_____
(SEAL) (Surety)

_____
(Title)

NOTES:

Article E-31. *Omitted.*
NOTES:

Article E-32. Liens. - Neither the final payment nor any part of the retained percentage shall become due until the contractor shall deliver to the owner a complete release of all liens or claims arising out of this contract, or receipts in full in place thereof and, if required in either case, an affidavit that so far as he has knowledge or information the releases and receipts include all labor and materials for which a lien or claim could be filed; but the contractor may, if any subcontractor or claimant refuses to furnish a release or receipt in full, furnish a bond satisfactory to the owner to indemnify the owner against any lien or claim. If any lien or claim remains unsatisfied after all payments are made, the contractor shall refund to the owner all moneys that the latter may be compelled to pay in discharging such lien or claim, including all costs and a reasonable attorney's fee [Se also Articles E-24, E-25, and E-28]

NOTES:

Article E-33. Assignment. - Neither party to the contract shall assign the contract or sublet it as a whole nor shall the contractor assign any moneys due to become due to him hereunder.

NOTES:

Article E-34. Mutual Responsibility of Contractors. - Should the contractor cause damage to any separate contractor on the work the contractor agrees, upon notice, to settle with such contractor by agreement if he will so settle. If such separate contractor sues the owner on account of any damage alleged to have been so sustained, the owner shall notify the contractor who shall defend such proceedings at his own expense, and if any judgment against the owner shall arise therefrom, the contractor shall pay or satisfy it and pay all costs incurred by the owner. [See also Article E-35]

NOTES:

Article E-35. Separate Contracts. - (a) *Duty of Contractor to Cooperate with Other Contractors.* - The owner reserves the right to let other contracts in connection with this work. The contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly regulate, schedule, connect, and coordinate his work with theirs.

(b) *Duty of Contractor to Report Defects.* - If any part of the contractor's work depends for proper execution or results upon the work of any other contractor, the contractor shall inspect and promptly report to the architect any defects in such work that render it unsuitable for such proper execution and results. The contractor's failure to inspect and report shall constitute and acceptance of the other contractor's work as fit a proper for the reception of the contractor's work, except as to defects which may develop in the other contractor's work after the execution of the contractor's work.

(c) *Duty of Contractor to Report Conflicts.* - To insure the proper execution of his subsequent work the contractor shall measure work already in place and shall at once report to the architect any discrepancy between the executed work and the drawings or specifications. [See also Article E-40]

(d) *Equipment.* - Article E-35 also applies to installation of loose equipment and fixtures by the owner or a lessee of the owner, PROVIDED: That the architect shall have rendered a decision in writing that no inconvenience to the contractor will result...

-- [See also Article E-34] --

NOTES:

Article E-36. Subcontractors, Materialmen, Suppliers, and Employees. - (a) *Submission of list.* - As soon as possible after notice of award of the contract and in any event not later that three days prior to the time fixed in the contract for delivery of the executed form of agreement to the owner, the contractor shall submit in writing to the architect a list of the names of subcontractors the contractor will employ on the work. The list of subcontractors is not submitted for approval but is for the purpose of establishing...

(a) What trades and portions of the work are to be performed under subcontract, and

(b) The names of the parties selected by the contractor to perform work by subcontract, the aforesaid selection being a matter lying solely within the discretion of the contractor.). **Contractor will also provide a list of subcontractors, noting their business trade, estimated value of their work and business classification (MBE/WBE) for the Local Participation Report to the Board.**

(c) *No approval of subcontractors.* - Neither the owner nor the architect undertakes to pass upon, or approve any subcontractor.

(d) *Warranty of contractor.* - The contractor warrants that the subcontractors selected by him are reputable, skilled, reliable, competent, qualified in the trade or field in which they are to perform on the project, and thoroughly familiar with applicable codes.

(e) *Certification on account of.* - The architect shall, on request furnish to any subcontractor, wherever practicable, evidence of the amounts certified on his account.

(f) *Contractor responsible for acts and omissions of subcontractors, materialmen, suppliers, and employers.* - The contractor agrees that he is a fully responsible for the acts and omissions of his subcontractors, materialmen, suppliers, and employees and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him. The failure of a subcontractor, materialman, supplier, or employee to perform shall not be asserted by the contractor as an excuse for any omission from or noncompliance with requirements of the contract; nor shall the contractor be entitled to an extension of time because of failure of a subcontractor, materialman, supplier, or employee to perform unless said failure was a direct result of some delay to the subcontractor, materialman, supplier, or employee of the kind and character described under Article E-18 for which the contractor shall have requested and received an extension of time under the terms of Article E-18 of the general conditions. [See also Article E-37(a) (3)] The subcontracting of work does not relieve the contractor of the full responsibility for the execution of work and for compliance with all requirements of the contract documents. The contractor may not assert negligence, inefficiency, insolvency, bankruptcy, or incompetence of any subcontractor, materialman, supplier, or employee as excuse for the existence of any noncompliance with or omission to fulfill any obligation under the contract either as to timely performance or as to compliance with methods and materials designated in the contract documents; nor shall the contractor assert nonperformance (unless an extension of time shall have been granted pursuant to Article E-18 as referred to hereinabove) of a subcontractor, materialman, supplier, or employee as excuse for the existence of any noncompliance with or omission to fulfill any obligation under the contract either as to timely performance or as to compliance with methods and materials designated in the contract documents.

As to subcontractors, materialmen, suppliers, and employees of the contractor, the doctrine that a principal is liable for the acts and omissions of his agent shall be binding on the contractor in his relationship to the owner, and the contractor may not reverse the aforesaid doctrine by serving as a conduit or agent for his own agent. [See also Article R-16 and condition of payment bond, Article E-30] Any provision in any contract between the contractor and any subcontractor pursuant to which the contractor is obliged to present to the owner any claim of any subcontractor shall be invalid. [See also Article E-37(1)]

(g) *No contract between owner and any subcontractor, materialman, supplier, or employee.* - Nothing contained in the contract documents shall create any contractual relation between the owner and any subcontractor or between the owner and any materialman, supplier, or employee or the contractor or his subcontractors. [See also Articles E-2, E-37, E-45, and E-60]

NOTES:

Article E-37. Relationship of Contractor and Subcontractors - a) *Obligations of Each* - contractor agrees to bind every subcontractor agrees to be bound by the terms of the contract documents insofar as they are applicable to his work, including the following provisions of this article:

THE SUBCONTRACTOR AGREES

(1) To be bound to the contractor by the terms of the contract documents and to assume toward the contractor all the obligations and responsibilities that the contractor by the aforesaid documents assumes toward the owner.

(2) To submit to the contractor applications for payment in such reasonable time as to enable the contractor to apply for payment tinder Article E-24 of the general conditions.

(3) To make all claims for extras, for extensions of time (See Articles E-18 and E-36) or for damages to the contractor in the manner provided in the general conditions for like claims by the contractor upon the owner, except that the time for making claims for extra expense is one week.

THE CONTRACTOR AGREES

(4) To be bound to the subcontractor by all the obligations that the owner assumes to the contractor under the contract documents.

(5) To pay the subcontractor upon the payment of certificates issued under the schedule of values described in Article E-24 of the general conditions the amount allowed to the contractor on account of the subcontractor's work to the extent of the subcontractor's interest therein; provided, however, that retainage shall be paid to the subcontractor as provided in the statutory affidavit specified under Article E-28.

(6) To pay the subcontractor upon the payment of certificates issued otherwise than as in-Subparagraph E-37(a) (5) above in such manner that at all times the subcontractor's total payments shall be as large in proportion to the value of the work done by the subcontractor as the total amount certified to the contractor is to the value of the work done by the subcontractor.

(7) To pay the subcontractor to such extent as may be provided by the contract documents or the subcontract, if either of these provides for earlier or larger payments than the above.

(8) To pay the subcontractor on demand for his work or materials as far as executed and fixed in place, less the retained percentage, at the time the certificate should issue, even though the architect fails to issue it for any cause not the fault of the subcontractor.

(9) To pay the subcontractor a just share of any fire insurance money received by the contractor.

(10) To make no demand for liquidated damages or penalty for delay in any sum in excess of such amount as may be specifically named in the subcontract.

(I 1) That no claim for services rendered or materials furnished by the contractor to the subcontractor shall be valid unless written notice thereof is given by the contractor to the subcontractor during the first ten days of the calendar month following that in which the claim originated.

(12) To give the subcontractor an opportunity to be present and to submit evidence in any dispute involving rights of the subcontractor. [See also Article E-36(e)]

(b) *Owner Not Obligated to any Subcontractor.* -There is no obligation on the part of the owner to pay to or to see to the payment of any sums to any (1) subcontractor, (2) materialman, (3) supplier, (4) laborer, (5) employee, or (6) claimant as defined in the payment bond. (See also Article E-36(d))

(c) *Incorporation of Terms in* Subcontracts.-The contractor agrees that failure on his part to incorporate in all subcontracts an express provision in accordance with Article E-37(I), above. shall be deemed to be and is a breach of an essential covenant and that in the event of such breach the contractor shall, within five days after demand of the owner, fumish proof in writing that the deficiency has been remedied to the end that (1) the contractor may not maintain that it is beyond his competence to require performance of terms of the contract by a subcontractor and (2) no subcontractor may maintain that he has not assumed toward the contractor all the obligations and responsibilities that the contractor has assumed toward the owner. Failure on the part of a contractor to effect remedy as above within five (5) days after receipt of written demand of the owner shall be *ipso facto* ground for issuance of a declaration of default by the owner.

- [See also Articles E-15, E-34, and E-36]

NOTES:

Article E-38. Architect. -- (a) *Supervision* --The architect shall have general supervision and direction of the work except in respect to safety as stated under Article E-12 and except as qualified by Articles E-13 and E-60 of the general conditions. He is the agent of the owner only when in special instances he is authorized in writing by the owner so to act, and in such instances he shall, upon request, show the contractor written authority. He has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the contract.

(b) *Interpreter and Impartial Judge*.-As the architect is, in the first instance, the interpreter of the conditions of the contract and the judge of its performance, he shall side neither with the owner nor with the contractor but shall use his powers under the contract to enforce its faithful performance by both.
(c) *Succession*.-In case of the termination of the employment of the architect, the owner shall appoint a capable and reputable architect against whom the contractor makes no reasonable objection and whose status under the contract be that of the former architect.

Article E-39. Architect's Decisions. - (a) *Promptness.* - The architect shall make decisions with reasonable promptness after presentation of evidence on (1) any claim of the owner or contractor, (2) a demand of the owner or contractor for a decision on any matter relating to the execution of progress of the work, or (3) a demand of the contractor or owner for interpretation of or additional instructions with respect to the contract documents. [See also Articles E-3 and E-16]

(b) *On artistic effect.* - The architect's decisions in matters relating to artistic effect shall be final if within the terms of the contract documents.

(c) *Claims for alleged procrastination.* - No claim for delay to the contractor or for additional expense to the contractor shall be allowed on account of failure of the architect to render decisions, make interpretations, or furnish additional instructions until ten days after receipt of written claim for additional compensation, damages, or extension of time served upon the architect and the owner and not then unless such claim be reasonable. [See also Articles E-3, E-15, and E-16] Architect will reimburse Owner for any damage claim due contractor.

NOTES:

Article E-40. Measurements and Dimensions. - Before ordering material or doing work which is dependent upon coordination with building conditions, the contractor shall verify all dimensions, elevations, grades, and pitch by taking measurements at the building and shall be responsible for the correctness of same. No consideration will be given to any claim based on differences between the actual dimensions and those indicated on the drawings. Any discrepancies between the drawings and/or the specifications and the existing conditions shall be referred to the architect for additional instructions before any work affected thereby is begun [See also Articles E-14, E-35(c), and E-40]

NOTES

Article E-41. Notice of Readiness for Final Inspection. - When the contractor is ready for a final inspection, he shall give notice to the architect in accordance with Article 5 of the form of agreement with a copy to the owner in the following words:

> The work on the contract for the [show name of improvement or project as it appears in the form of agreement] having been fully completed except as stipulated hereinbelow, it is requested that a final inspection be made promptly by the architect in accordance with Article 5 of the form of agreement. The following work is incomplete through no fault of the contractor [list any work which the contractor regards as a proper exception under Subparagraph (d) of Article 5 of the form of agreement] [See Article E-71 for specimen of form of agreement].

No final inspection shall be made until such time as the architect has received a letter in the exact form indicated above and a copy thereof has been received by the owner. In the event the contractor shall have issued the "Notice of Readiness for Final Inspection" prematurely [hereinafter referred to as "false start"] he shall be liable for the damage resulting from the aforesaid false start including but not limited to the salaries, professional fees, and travel and living expenses of the persons or parties inconvenienced by the aforesaid false start. [See also Article E-16] The contractor acknowledges and agrees that he has an indivisible, indelegable, and intransferrable contractual obligation to the owner to make his own inspections of his own work at all stages of construction; and he shall supervise and superintend performance of the contract in such manner as to enable him to confirm and corroborate at all times that all work has been executed strictly, literally, rigidly, and inflexibly in accordance with the methods and materials designated in the contract documents so that (a) his certifications on periodical estimates shall be true and correct and (b) his notice of readiness for final inspection shall be true and correct. [See also Articles E-13, E-14, E-24, and E-467]. Accordingly, the contractor agrees that he may not defend or excuse any deviation from the contract documents on the ground (a) that the deviation was not brought to his attention by another person or party or other persons or parties, or (b) that a subcontractor is or subcontractors are at fault.

NOTES:

Article E-42. Use of Premises. - The contractor shall confine his plant, his apparatus, the staging and storage of materials, the operations of his forces, and the work to limits indicated by law, ordinances, permits, or the contract documents and shall not unreasonably encumber the premises with his materials. The contractor shall not load or permit any part of the work to be loaded with weight that will endanger its safety. The contractor shall enforce the architect's instructions regarding signs, advertisements, fires and smoking. [See also Article E-11]

NOTES:

1. Smoking is prohibited except in designated area.

Article E-43. Cutting, Patching, and Fitting. - 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. [See also Articles E-03, E-40, and E-53]

NOTES:

1. All Contractors, subcontractors and material suppliers will be responsible for inspecting all job conditions affecting the installation of an item and taking all field measurements required prior to fabrication of an item to insure that the item concerned will integrate properly with all adjacent materials and fit all other conditions as they exist or will exist in the finished construction. Work in connection with installation of an item will be coordinated with all other affected work and trades. Sleeves, anchors, and other items that must be embodied in or that otherwise affect other portions of the work will be located and set while such portions of the work are in progress.

   Each Contractor is responsible for inspecting the work which precedes his work and reporting any deficiencies which will affect his work to the Architect/Program Manager prior to beginning new work. Should a Contractor be required to perform work or apply finished materials, he shall inspect the surfaces or work to receive his materials for any defects, alignment or conditions that may prevent his work from meeting or exceeding the requirements of the Contract Documents. Should the Contractor find by inspection that the surfaces of work are not acceptable to receive his work, he shall notify the Program Manager in writing of the conditions. Should the Contractor fail to inspect the work or advise the Program Manager and or/Architect, the Contractor then will be held responsible for the resulting damage. Once new work has begun over preceding work, the Architect/Program Manager will note this as the new Contractor's acceptance of all preceding work.

Article E-44. Cleaning Up. - The contractor shall at all times keep the premises free from accumulations of waste materials or rubbish caused by his employees or work. At the completion of the work he shall remove all his rubbish from and about the building and all his tools, scaffolding, and surplus materials and shall leave his work "broom-clean" or its equivalent, unless more exactly specified. In case of disputes the owner may remove the rubbish and charge the cost to the contractor as the architect shall determine to be just. [See also Articles E-12 and E-27]

NOTES:

1. General temporary facilities which affect all Contractors are outlined below. Refer to Division I-Section II-Scope of Work for other specific temporary services assigned to each particular Scope of Work.

   The Contractor will provide a job telephone for his, the Architect's and the Owner's use for the duration of the project. Each Contractor will provide, or arrange for the use of, a telephone for his own use while on the project.

   Each Contractor will provide his own drinking water.

   Each Contractor will provide his own storage and office trailers that he deems necessary to carry out his work. All Utilities for Contractor's storage and office trailers, including utility consumption will be the responsibility of each individual Contractor.

   The Contractor will provide and maintain lines, batters and permanent reference points. Each Contractor is responsible for and will provide his own layout and will coordinate his layout with the other Contractors.

   The Contractor will broom sweep the building, once a week or more often as required by job conditions and remove trash from building site once per week or as often as needed. The Contractor will assume this responsibility as soon as the roof deck is installed, or demolition has been completed in each portion of the building area.

   Each Contractor will not allow trash to accumulate and will remove same from work areas at the close of each day. All debris will be disposed of off campus on a weekly basis. Burning of materials on site will not be permitted.

   The Contractor will be responsible for the final clean up of the job for the purpose of readying the project for final Architectural review and Owner Occupancy.

   Each Contractor will remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from interior and exterior surfaces of fixtures, hardware, finish surfaces or equipment furnished as part of his Contract prior to final inspection.

   The Contractor will be responsible for operating and maintaining the permanent heating/cooling systems as the Schedule requires for the installation of finishes.

   Contractor will replace all air conditioning filters with new filters just prior to Owner's occupancy of the building. This is NOT the filters used for operation during finishes and it is NOT the attic stock filters required for turn-over.

Article E-45. Specification Arrangement. - The specifications are separated into numbered and titled divisions for convenience of reference. Neither the owner not the architect assumes any responsibility for defining the limits of any subcontracts on account of the arrangement of the specifications. Notwithstanding the appearance of such language in the various divisions of the specifications as, "The Plumbing Contractor", "The Electrical Contractor", "The Roofing Contractor", *etc.*, the general contractor is responsible to the owner for the entire contract and the execution of all of the work referred to in the contract documents. No partial sets of bidding documents shall be issued by the architect. [See also Articles E-03, E-2, E-36, and E-37]

NOTES:

Article E-46. Commencement, Prosecution, and Completion. - The contractor will be required (a) to commence work under this contract within ten days after date of written notice from the owner to proceed [See Article E-1(j)], (b) to prosecute the work with faithfulness and energy, (c) to install the various parts of the work with equal steps shown on the construction progress schedule and at the same rate shown on the construction progress schedule to be furnished pursuant to Article E-50, and (d) to complete the work within the time stipulated in the proposal form as adjusted by any extensions of time provided for under Articles E-15 and E-18. Commencement of work shall mean actual physical work on the site. [See also Articles E-1(f) and E-1(i)] **In the event the contractor shall be delinquent in respect to compliance with the time limits established in the construction progress schedule, he shall, within seven days after receipt of written demand of the owner, commence working not less than a twelve-hour day and not less than six days a week until such time as he shall have brought the amount of work in place into compliance with the construction progress schedule**. Fulfillment of this requirement as to overtime work (hereinafter referred to as "recovery of lost time required of the contractor for his breach of the covenant as to time") shall not relieve the contractor from liability for breach of the covenant as to time the **contractor shall be entitle to NO claim against the owner** for any payment, repayment, reimbursement, remittance, remuneration, compensation, profit, cost, overhead, expense, loss, expenditure, allowance, charge, demand, hire, wages, salary, tax, cash, assessment, price, money, bill, statement, dues, recovery, restitution, benefit, recoupment, exaction, injury or damages, [See also Articles E-25 and E-26]

NOTES:

Article E-47. Alternates. - (1) Deductive alternates may be used to reduce the base bid; if used, deductive alternates will be prioritized and exercised in numerical sequence as used in the bid documents.

(2) Additive alternates may be used; if used they may be exercised in any order.

(3) The Project shall be awarded by the base bid less any deductive alternate selected (if any); plus any Additive alternates selected (if any). To be clear, any deductive alternates and/or additive alternates selected will be used to determine the low bid.. [See also Article C-04(d)]

NOTES:

Article E-48. CONTRACT CLOSE-OUT

Comply with requirements stated in Conditions of the Contract.

No provisions of this Section shall in any way relieve the Contractor of completing his work on time.

PROJECT TERMINATION:

Contract requirements shall be met with construction activities have successfully produced, in this order, these three terminal activities:

Substantial Completion
Final Completion
Final Payment

PRELIMINARY INSPECTION:

When the Contractor determines that his work or portions of his work are sufficiently near substantial completion to warrant a preliminary inspection, he shall request in writing to the Architect/Program Manager a preliminary inspection.

At a mutually agreeable time the Architect and/or Program Manager and Contractor shall conduct a preliminary inspection of the work for completeness and conformance to the Contract Documents. A preliminary punch list of incomplete or non-conformance work shall be made by the Contractor and Program Manager and/or Architect.

The Program Manager and/or Architect shall establish a reasonable time period for the completion or correction of all items on the preliminary punch list. Completion or correction of the preliminary punch list will be prerequisite to Architectural observation for Substantial Completion.

SUBSTANTIAL COMPLETION:

The Date of Substantial Completion of the work or designated portion thereof is the date certified by the Architect when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner may occupy the work or designated portion thereof for the use for which it is intended.

When Contractor considers that the work, or designated portion thereof is substantially complete, and he has completed correction of the items on the preliminary punch list, the Contractor will submit a written notice to the Program Manager and/or Architect stating that the work, or designated portion thereof, is substantially complete and that the Contractor requests inspection of the work.

> **In addition to the written notice requesting inspection, the Contractor shall prepare for the Program Manager and/or Architect a list of items which remain incomplete or not corrected. The Contractor's List will include a reason why the item of work is incomplete or not corrected and will give a date when the work will be completed or corrected**.

The Program Manager shall review the Contractor's request and list, consult with the Architect and submit request for Substantial Completion Observation at a mutually agreeable date.

Within a reasonable time after receipt of such notice, Architect, Program Manager and at his option, the Owner, will make an observation to determine the status of completion.

Should Architect determine that the work is not substantially complete:

Architect will promptly notify the Program Manager in writing, giving the reasons for the work not being substantially complete.
Program Manager shall forward notice to the Contractor.

Contractor shall remedy the deficiencies in the work, and send a second written notice of substantial completion to the Architect, who will forward the notice tot he Program Manager.

Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the Architect that the work is complete. Architect, if in agreement shall forward to the Program Manager.

When Architect concurs that the work is substantially complete, he will:

Prepare a Certificate of Substantial Completion on AIA Form G704, accompanied by Architect's Punch List of items to be completed or corrected, as verified and amended by the Program Manager.

(Note: Contract responsibilities are not altered by inclusion or omission of required work from the Punch List)

Submit the Certificate to Owner and Program Manager for their written acceptance of the responsibilities assigned to them in the Certificate.

Contractor shall complete or correct all items identified on the Punch List and required by the Contract requirements within time limits established by the Certificate of Substantial Completion.

FINAL COMPLETION:

To attain Final SUBSTANTIAL COMPLETION, The Contractor shall complete activities pertaining to Substantial Completion, and complete work on the Punch List. Only the shall he issue written request to the Program Manager and Architect for Final Observation.

When Contractor considers the work is complete, he shall submit written certification to Program Manager and Architect that:

Contract Documents have been reviewed.

Work has been inspected for compliance with Contract Documents.

Work has been completed in accordance with Contract Documents.

Equipment and systems have been tested in the presence of the Owner's representative and are operational.

Work is completed and ready for final observation.

Architect, Program Manager, Contractor and Owner will make an observation to verify the status of completion with reasonable promptness after receipt of such certification.

Should Architect consider that the work is incomplete or defective:

Architect will promptly notify the Program Manager in writing, listing the incomplete or defective work. Program Manager will notify Contractor.

Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to the Program Manager that the work is complete. Program Manager, if in agreement shall forward to the Architect.

Architect will re-inspect the work.

When the Architect finds that the work is acceptable under the Contract Documents, he shall request the Contractor to make close-out submittals.

CONTRACTOR'S CLOSE-OUT SUBMITTALS TO ARCHITECT AND/OR PROGRAM MANAGER (See Section G for additional details and requirements):

- Evidence of Payment and Release of liens:

- Assurance that unsettled claims will be settled including;

  - Submission of AIA Document G706, Contractor's Affidavit of Debts and Claims
  - Submission of AIA Document G707, Consent of Surety Company to Final Payment
  - Submission of AIA Document G706A, Contractor's Affidavit of Release of Liens from:
    - Contractor
    - Subcontractor
    - Materials Suppliers:

- Evidence of compliance with requirements of governing authorities:

  - Certificate of Occupancy
  - Certificate of Inspection

- Contractor's Written Guarantee on Company letterhead

- Project Record Document:

- Operating and Maintenance Data, Instructions to Owner's Personnel.

- Warranties and Bonds: To requirements of individual sections

- Spare Parts and Maintenance Materials: To requirements of individual sections

- Clean-up Letter on company letterhead stating project clean-up has been completed and that Contractor has removed all temporary facilities.

- Asbestos Letter on company letterhead stating no asbestos containing materials have been installed on the project.

- Surveyor's Drawings-

- As-Built Drawings to include a CD of the complete drawings, including GPS coordinates for utilities as required by Augusta/Richmond County Utilities and Inspection Department for occupancy.
- Certificate of Substantial Completion
- Letter from Contractor stating that he has instructed Owner's personnel on use of equipment (E-55)
- Test and Balance Reports (Mechanical)
- Certificate of Manufacturer for major components (E-67)
- List of Subcontractors by Specialty, including address and telephone numbers for warrantee calls
- Termite Letter (Bond)
- Low Voltage Systems Certification
- Statutory Affidavit as included in the Project manual
- Non-Influence Affidavit as included in the Project Manual.

NO FINAL APPLICATIONS FOR PAYMENT WILL BE PROCESSED FOR PAYMENT UNTIL FINAL INSPECTION AND FINAL ACCEPTANCE BY THE ARCHITECT, PROGRAM MANAGER, AND OWNER.

FINAL ADJUSTMENT OF ACCOUNTS:

Submit a final statement of acceptance to Program Manager

Statement shall reflect all adjustments to the Contract Sum:

- The original Contract Sum
- Additions and Deductions resulting from
    - Previous Change Orders
    - Unit Prices
    - Deductions for uncorrected work
    - Deductions for re-inspection payments
    - Other payments
- TOTAL CONTRACT SUM as adjusted.
- Previous payment
- Sum Remaining Due

Program Manager will prepare a final Change Order, reflecting adjustments to the Contract Sum which were not previously made by Change Orders.

FINAL APPLICATION FOR PAYMENT:

Contract shall forward the final Application for Payment to the Architect. The Architect will evaluate the Application and forward to the Program Manager with recommendations in accordance with procedures and requirements stated in the Conditions of the Contract.

Submission of AIA Document G706-Release Liens, AIA Documents G707- Consent of Surety and AIA Document G706 Affidavit of Payment of Debts and Claims are required before the Program Manager will evaluate any final Application for Payment

In the event that the Contractor submits final Application for Payment with the aforementioned required AIA Documents, refer to Section G regarding withholdings. This amount does not include any amount held for change orders pending, back charges, project deficiencies or punch list items.

NOTES:

Article E-49. Conflicts. - The following principles shall govern the settlement of disputes which may arise over conflicts in the contract documents: (a) as between figures given on drawings and the scaled measurements, the figures shall govern; (b) as between large-scale drawings and small-scale drawings, the larger scale shall govern, (c) as between drawings and specifications, the requirements of the specifications shall govern; and (d) as between contract, plans and specifications shall be reported to the Architect for his decision. The principles set forth herein shall not alter provisions of Article E-2 of the general conditions. Schedules, lists, indexes, tables, inventories, written instructions, written descriptions, summaries, statements, classifications, specifications, written selections, or written designations although appearing on the drawings are deemed to be and are “specifications” within the meaning of Article E-49

NOTES:

Article E-50. Progress Reports. - Within such reasonable space of time as the owner shall designate in writing, the contractor shall submit to the owner such schedule of quantities and costs, construction progress schedules, cash flow schedule showing cash flow projected monthly from job beginning to completion, payrolls, bills, vouchers, correct copies of all subcontracts, statements, reports, correct copies of all agreements, correspondence, and written transactions with the surety on the performance bond which have any relevance to the work, estimates, records, and other data as the owner may request concerning work performed or to be performed under this contract. When requested by the owner, the contractor shall give the owner access to accounts relating to the foregoing.

The above reports shall include but are not limited to (a) written notice of dates by which specified work will have been completed, (b) written notice of dates by which condemned work shall have been made good, (c) written notice that condemned work has been made good, (d) written notice as to the date or dates by which work has not been performed with equal steps and at the same rate required by the construction progress schedule shall have been brought into conformity with the construction progress schedule, (e) date by which any undisputed claim of a subcontractor, materialman, or laborer shall have been paid, (f) written advice regarding the nature and amount of any disputed claim of a subcontractor, materialman, or laborer and (g) information regarding work performed under Case (b) or Case (c) of Article E-15 upon demand of the owner pursuant to Article E-15(k). Prior to submitting the first periodical estimate [See Article E-24], the contractor shall have furnished to the owner and the architect a construction progress schedule in accordance with the style and format of a specimen to be furnished by the owner [copies of which specimen will be furnished to any bidder on request. [See also Articles E-1(i), E-19, E-20, E-26, and E-46]

NOTES:

1. All Contractors will be required to submit weekly Construction Reports by 10:00am Friday to the Program Manager. The report will include the number of men by trade or craft, type and location of work. It will include Contractors and other information as required by the Program Manager. Each Contractor will use the Program Manager's form.

   The Program Manager, on behalf of the Owner, will arrange for, duly notify all affected contractors, establish an agenda, and conduct monthly job meetings during the course of the contract. Each Contractor will be represented at every meeting by a responsible member of his organization.

Article E-51. Office for Program Manager. – The program manager will utilize the contractor's jobsite trailer/office for the purposes of holding meetings and reviewing documents. The contractor shall provide a jobsite office that is adequate to house the required project record documents and to have OAC meetings.

NOTES:

Article E-52. Trading with the State Statute. - In submitting a proposal, the bidder certifies that the provision of the act entitled "State Employees and Officials - Trading with the State", Georgia Laws 1956, pp. 60 *et seq.*, has been complied with.

NOTES:

Article E-53. Manufacturer's Recommendations. - In the event the contract shall require that given work or materials shall be installed in accordance with the manufacturer's recommendations or requirements, the contractor shall obtain for his use at the site in executing the work copies of the bulletin, circular, catalogue, or other publication of the manufacturer bearing the title, number, edition, date, *etc.* [hereinafter referred to as the "doctrine"] designated in the contract. In the event no such designation appears in the contract documents, the contractor shall not proceed with the installation of the work or materials until (1) he shall have requested from the architect in writing (with copy of the request to the owner) additional instructions pursuant to Article E-3 of the general conditions as to title, number, edition, date, *etc.* of the bulletin, circular, catalogue or other publication of the manufacturer which contains the manufacturer's published recommendations or requirements for installation and use of the product and (2) until he shall have received the aforesaid additional instructions. Prior to proceeding with the installation of the said work or materials, the contractor shall obtain for his use at the site in executing the work the "doctrine" designated in the said additional instructions of the architect. The plans and specifications shall be adhered to in all cases where they call for quality of materials, quality of workmanship, or quality of construction which is equal to or in excess of the quality called for in the manufacturer's recommendations or requirements. There may be no deviations from the plans and specifications except to the extent that the said deviations shall be necessary in order to comply with the manufacturer's express recommendations or express requirements. [See also Articles E-5, E-43, E-55, and E-67]

NOTES:

Article E-54. Keys. - Keys with tags indicating number and/or description of door or room each key is intended to fit attached to each key, shall be delivered to the owner. Contractor will forward keys to owner with a letter to Architect indicating that the keys given to Owner and person's name accepting keys. Master keys will be hand delivered to Director of Maintenance of Richmond County School District. Contractor shall prepare and furnish with the keys itemized key schedule in quintuplicate listing the door or room number and/or description, serial number or key and number of keys being delivered for each door or lock.

NOTES:

Article E-55. Operation and Maintenance Data and Instructions. - Prior to making request for final inspection, the contractor shall put all mechanical systems and equipment into operation and shall make all tests and adjustments. The contractor shall furnish proper instructions to the lessee of the owner in the presence of the architect concerning operation and maintenance of all mechanical and electrical equipment. Equipment, kitchen equipment, fire alarm & life safety systems, intercom, and time clock systems. The contractor shall give notice in writing to the architect with copy to the owner at least fifteen days prior to the date on which it is proposed to commence. The aforesaid notice shall not (repeat NOT) be given to the lessee of the owner. For all items of mechanical or electrical equipment or apparatus installed which require operation or maintenance after occupancy, the contractor shall furnish and deliver to the owner [not (repeat NOT) to the lessee] complete brochures and data as prepared and published by the manufacturers covering details or operation and maintenance. [See also Articles E-53, E-62, and E-67]

Section G of the Specifications provides detailed requirements for O&M and Close-out documentation requirements.

Article E-56. Space Conditions. - All pipes passing through floors, walls, and ceilings, shall be installed with sufficient space between them to permit installation of pipe insulation and floor, wall, and ceiling plates without cutting of insulation or plates. Roughing dimensions shall be prepared by the contractor to accomplish this requirement. The contractor shall locate all equipment which must be serviced, operated, or maintained in fully accessible positions. This provision includes but is not limited to valves, traps, cleanouts, motors, controllers, switchgear, drain points, and fire dampers. If spaces, dimensions, or other design conditions do not permit compliance with the present article, the contractor shall file a demand in writing with the architect for additional instructions pursuant to Article E-3, furnishing a copy of the aforesaid demand to the owner. [See also Articles E-3 and E-40]

NOTES:

Article E-57. Cash Allowances. - The contractor shall include in the contract sum all allowances named in the contract documents and shall cause the work thus covered to be done by such contractors and for such sums as the architect may direct, the contract sum being adjusted in conformity therewith. The contractor declares that the contract sum includes such sums for overhead and profit on account of cash allowances as he deems proper. No demand for overhead and profit other that those included in the contract sum shall be allowed. The contractor shall not be required to employ for any such work persons against whom he has a reasonable objection.

NOTES:

1. RELATED DOCUMENTS:
   Drawing and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section

   SUMMARY:
   This section specifies administrative and procedural requirements governing handling and processing allowances. Selected materials and equipment, and in some cases, their installation are shown and specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. Additional requirements if necessary will be issued by Change Order.

Types of allowances required include the following:

General allowances
Material allowances
Unit Cost allowances

Use of allowances for inspection and testing agencies is included in Section "Testing laboratory Services"

Allowance funds will not be used for any work indicated in the Contract Documents to be part of the Base Bid Contract.

When changes in the contract sum (increase or decrease) are based on Allowances, no overhead or profit shall be allowed and allowances are Net.

2. SUBMITTALS

For General Allowances, when directed by the Program Manager, submit proposals for work done under the General Allowances. Submit written information a follows:

State proposed amount to be charged against the allowance

Include full backup data such as cost estimates, material breakdowns, subcontractor's letter or proposal or similar information.

Submit this General Allowance Proposal in a single copy to the Program Manager.

For Materials Allowances, submit invoices or delivery slips to indicate actual quantities and cost of materials delivered to the site for use in fulfillment of each materials allowance. Such invoices must be transmitted and approved by the Program Manager prior to billing the applicable invoices against the Materials Allowance amount.

For test Allowances, submit invoices from testing laboratory or from applicable consultant to indicate actual test and inspections performed for use in fulfillment of each testing allowance. Such invoices must be transmitted and approved by the Program Manager prior to billing the applicable invoices against the Testing Allowance amount.

GENERAL ALLOWANCES

Use the general allowances only as directed for the Owner's purposes, and only by Field Directives issued by the Program Manager which designate amounts to be charged to the allowance. Such work must be approved by the Program Manager and a Field Directives will be issued prior to implementation.

Field Directives authorizing use of funds from general allowances will include the Contractor's related costs. No overhead and profit margins will be allowed as allowances are net.

At project close-out, credit unused amounts remaining in the General Allowance to Owner by Change Order.

MATERIALS ALLOWANCES

Material allowances will include costs of all materials and applicable sales tax

All labor to install materials purchased under allowance shall be included under Base Bid, and shall not be part of the materials allowance

At the earliest feasible date after Contract award, advise the Architect of the date when the final selection and purchase of each product or system described by an allowance must be completed in order to avoid delay in performance of the Work.

When requested by the Program Manager and/or Architect obtain proposals for each allowance for use in making final selections; include recommendations that are relevant to performance of the Work.

Purchase products and systems as selected by the Architect from the designated supplier

UNIT COST ALLOWANCES

Perform work based on unit-cost allowances only as directed by Field Directives issued by the Architect which designate amounts to be charged to the allowance. Such work must be approved by the Program Manager and a Field Directives will be issued prior to implementation.

Field Directives authorizing use of funds from the unit-cost allowances will include the Contractor's related costs. No overhead and profit margins will be allowed as allowances are net.

At Project close-out, credit unused amounts remaining in the unit-cost allowances to Owner by Change Order.

Article E-58. Testing Services. - Laboratories for testing services shall be selected by, engaged by, and responsible to the Owner, *Provided:* That, in the case of tests (a) prescribed in the contract documents or any part thereof, including Article E-13 of the general conditions or (b) requested by the architect. **The Contractor shall coordinate directly with the selected testing agency to schedule testing as required/needed, and provide notification to the architect stating the date and the hour when he will be ready for the test,** Should reinspection's be required by failure of the work to be ready or by failure of the work to meet specifications, the expense of the services of the testing laboratory shall be applied against the contract fees by a credit adjustment to the owner effected by the furnishing of notice to the contractor by the owner accompanied by a copy of the statement for the testing services on the test which failed or for which the contractor was not ready. This article does not apply to verification of design mix on concrete. [See also Articles E-13 and E-65]

Article E-59. Drilling Samples and Log of Drilling Wells. - In the event the work includes a drilled well, the contractor shall forward drilling samples to "Ground Water Division: State Department of Mines, Mining, and Geology; 19 Hunter Street; Agriculture Building; Atlanta, Georgia 30303". Notice by contractor (NOT BY SUBCONTRACTOR) concerning shipment must be forwarded to the Ground Water Division setting forth the name and number of the job, and a copy of the notice must be furnished to the resident engineer inspector, architect, and owner. Samples shall be placed in glass jars of one pint size. The jar shall be tightly covered and shall be labeled in ink to show the date and depth at which the samples were taken and the number of the job. At every change of formation the depth and date at which the change occurred and any unusual circumstances during the completion of the work. Satisfactory evidence that samples have been delivered to the Ground Water Division and receipt of the log book shall be conditions precedent to certification of the work for payment.

Article E-60. Contractor's Warranty as to Performance. - The contractor warrants that he is familiar with the codes applicable to the work and that he has the skill, knowledge, competence, organization, and plant to execute the work promptly and efficiently in compliance with the requirements of the contract documents. The contractor having the obligation to keep a competent superintendent on the work during its progress, to employ only skilled mechanics, and to enforce strict discipline and good order among his employees, the contractor, himself is responsible for seeing that the work is installed in accordance with the contract documents. Failure or omission on the part of the owner, representatives of the owner, agents of the owner, resident engineer inspector, clerk-of-the-works, engineers employed by the architect, representatives of the architect, or the architect either to discover or to bring to the attention of the contractor any deviation from, omission from, or noncompliance with the contract documents shall not be set up by the contractor as a defense for failure on his part to install the work in accordance with the contract documents or for any other neglect to fulfill requirements of the contract; nor shall the presence of any one, or all, or any of the foregoing at the site or the fact that any one, or all, or any of the foregoing may have examined the work in accordance with the contract documents or for any neglect to fulfill requirements of the contract. No requirement of this contract may be altered or waived except in pursuance of a written order of the owner and in strict accordance with the provisions in the contract for changes in the work. [See also Article E-9, E-13, E-14, E-15, E-20, E-36, E-37, E-38, and E-39]

NOTES:

Article E-61. Staples Prohibited on Pipe and Ductwork Insulation. - No staples shall be used in the application of any type of insulation on any time of pipe or in the application of any type of insulation or any type of ductwork.

NOTES:

Article E-62. Mechanical Systems, Retainage Pending Balance of. - If the work includes a heating system, there shall be withheld from the retainage of the contractor as an exception under Article 5(d) of the form of agreement [work which is incomplete through no fault on the part of the contractor] one-half of one per cent of the amount shown on the breakdown of the contractor for the heating system until such time as the architect shall have certified that the heating system has been balanced under seasonal weather conditions, *Provided:* That the amount withheld shall in no event be less than $1,000.00; and if the work includes an air conditioning system, the same provision shall apply to the said air conditioning system. [See also Article E-71 for specimen of form of agreement]

NOTES:

Article E-63. Hot Water Heaters. - No plastic dip tubes may be installed in any hot water heater. The dip tube or filler tube for any hot water heater shall be of galvanized steel, brass, copper, or stainless steel pipe. Temperature relief valves or combined temperature and pressure relief valves for any hot water heaters shall be of such design that the water in the hot water tank will not exceed 210 degrees Fahrenheit maximum. Temperature relief valves or combined temperature and pressure relief valves for any hot water heaters shall be set at a pressure not exceeding the rated working pressure of the hot water tank or heater, but in no case in excess of 150 pounds per square inch. If the architect shall have designed work not in compliance with this article, there shall be a change order with an adjustment in the contract as provided in the contract for changes in the work

NOTES:

Article E-64. Effect of Addenda, Amendments, Bulletins, Deletions, Omissions, and Change Orders. - No special implication, interpretation, construction, connotation, denotation, import, or meaning shall be assigned to any provision of the contract documents because of changes created by the issuance of any (1) addendum, (2) amendment, (3) bulletin, (4) notice of deletion, (5) notice of omission, or (6) change order other than the precise meaning that the contract documents have had if the provision thus created had read originally as it reads subsequently to the (1) addendum, (2) amendment, (3) bulletin, (4) notice of deletion, (5) notice of omission, or (6) change order by which it was created.

NOTES:

Article E-65. Concrete Specifications. - "Standard Minimum Concrete Specifications", October 1963, adopted jointly by Georgia Branch, the Associated General Contractors of America, and Georgia Ready-Mix Concrete Association are adopted as a minimum requirement, but in the event any other provision of the contract documents provides for materials, conditions, or services which exceed in quality the materials, conditions, or services required under the aforesaid "Standard Minimum Concrete Specifications", October 1963, the higher quality of materials, may be obtained from Georgia Branch, Associated General Contractors of America, 163 Harris Street, N.W., Atlanta, Georgia, without cost. [See also Article E-58]

NOTES:

Article E-66. House Bill No. 210. - House Bill No. 210 [Act No. 443] of the General Assembly of Georgia having been signed into law on April 12, 1963, the same is hereby incorporated into the general conditions of the contract as follows:

SECTION 1

No contract for the construction of, addition to, or repair of any facility, the cost of which is borne by the State, or any department, agency, commission, authority, or political subdivision thereof shall be let, unless said contract contains a stipulation therein providing that the contractor or subcontractor shall use exclusively Georgia forest products in construction thereof, when forest products are to be used in such construction, addition of repair, and if Georgia forest products are available.

SECTION 2

The provisions of this Act shall not apply when in conflict with Federal rules and regulations concerning construction.

NOTES:

Article E-67. Certificates of Manufacturers for Major Components. - For elevators, moving walks, dumb-waiters, escalators, lifts, major components of air conditioning systems [*i.e*., cooling towers, compressors, condensers, absorption units, chiller units, fan coil units, air handling units, boilers, base mounted pumps, and temperature controls]; major components of heating systems [*i.e.*, boilers, base mounted pumps, air handling units, unit ventilators, fan coil units, temperature controls, and boiler chemical feed systems]; major components of plumbing systems [*i.e.*, boilers, base mounted pumps, sewage pumps and water treatment systems]; and incinerator systems; start-up, testing, and placing into operation shall be performed by the field representative(s) of the manufacturer(s) in which the manufacturer(s) shall be filed with the owner on the letterhead(s) of the manufacturer(s) in which the manufacturer(s) certifies or certify that "the equipment has been installed in strict compliance with the recommendations of the manufacturer(s) and is operating properly". [See specimen of certificate, Form No. 290 attached hereto] The manufacturer(s) shall list in the certificate the item or items furnished to the job. The date, name, or other positive means of identifying the exact document or documents containing the recommendations of the manufacturer(s) shall be set forth in the certificate. A copy of each of the aforesaid documents shall be attached to the certificate. A specimen of the certificate will be furnished by the owner and shall be adhered to by the manufacturer(s) in preparing the certificate. The contractor expressly agrees that the aforesaid manufacturer(s) is (are) solely the agent(s) of the contractor. The contractor shall coordinate the performance of the aforesaid services and shall, in all cases where the equipment of two or more manufacturer's ties in and functions together require the field representative to perform simultaneously the initial start-up, the testing, and the placing of their equipment into operation. "Start-up" is defined as putting the equipment into action. "Testing" is defined as performing such testing as is stipulated in the contract documents to be performed. "Placing into operation" is defined as operating the equipment for a sufficient period of time for the determination to be made that it is performing properly. [See also Articles E-53 and E-55) *Attachment to Article E-67:* Form No. 290 (less enclosure thereto) - Specimen Certificate of Manufacturer.

NOTES:

SPECIMEN CERTIFICATE OF MANUFACTURER

INSTRUCTIONS FOR PREPARATION OF CERTIFICATE: To be acceptable, the certificate must be prepared in the form indicated by this specimen *on the official letterhead of the manufacturer*. No portions of the certificate many be omitted. Attached is a copy of the contract provision under which the certificate is required. The Authority needs only one copy of the certificate. If equipment of a manufacturer is not installed in strict compliance with the recommendations of the manufacturer or if in the design of the work the equipment is not applied in strict compliance with the recommendations of the manufacturer, a letter from the manufacturer should be forwarded to the contractor (with copies to the architect and the owner) setting forth a list of the deviations from the recommendations of the manufacturer and stating what remains to be done in order to bring the work into strict compliance with the recommendations of the manufacturer. (See "Definitions" set forth on the last page of this specimen.] Prior to calling upon the representative of the manufacturer for performance of the services necessary to enable him to execute a certificate in accordance with this specimen, it is the obligation of the contractor to have installed the work in strict compliance with the recommendations of the manufacturer [See Article E-33 of the General Conditions], and it is likewise the obligation of the contractor to have put the equipment in good operating condition in absolute and final readiness for the "start-up", "testing", and "placing into operation" as defined hereinbelow by the representative of the manufacturer. If the contractor has met his obligations as outlined hereinbefore, it would hardly be possible for more than one day of the time of the representative of the manufacturer to be required.

Date:_____

Richmond County Board of Education
2083 Heckle Street
Augusta, Georgia 30904-4295

Re: Certificate of JOHN DOE CORPORATION that equipment or components furnished by it has [or have, as the case may be] been installed in strict compliance with its recommendations and is [or are, as the case may be] operating properly at IMPROVEMENT OR PROJECT NO.
_____

Gentlemen:

1. We certify through our duly authorized and acting agent that the following item [or items, as the case may be] furnished by us to the project or improvement named in the caption was [or were, as the case may be] started up, tested, and placed in operation by our authorized field representative on [enter the date on which the field representative performed the start-up, test, and placing into operation] and is [or are, as the case may be] operating properly:

[List the item or items furnished to the job. Show catalogue number or numbers.]

2. We certify further that the aforesaid equipment was installed in strict compliance with our recommendations as published by us in the following document [or documents, as the case may be]:

[Insert the date, name, or other positive means of identifying the exact document or documents in which the recommendations for installation and use of the item or items are published.] (*)

3. A copy of the aforesaid document(s) is (are) attached hereto.

This _____ day of _____, 19 _____

JOE DOE CORPORATION

By _____
Authorized Representative

(*) The date *must* be shown

Attachment -- Copy of contract provision -- (Article E-67)]

DEFINITIONS:

1. "Start-up" is defined as putting the equipment into action.

2, "Testing" is defined as performing such testing as is stipulated in the contract documents to be performed.

3. "Placing into operation" is defined as operating the equipment for a sufficient period of time for the determination to be made that it is performing properly.

Article E-68. *Omitted.*

NOTES:

Article E-69. Copies of Notices to Owner. - Wherever the general conditions provide that a copy of any notice, request, or demand filed with the architect by the contractor shall be furnished to the owner, such notice, request or demand shall not become effective until the owner's copy shall have been received by the owner. No notice in writing or orally to the architect or to the resident engineer inspector is notice to the owner unless copy of the aforesaid notice in writing shall have been properly served upon the owner at the address shown hereinbelow:

Richmond County Board of Education
864 Broad Street
Augusta, Georgia 30901

-- [See also Articles E-1(d), E-3, E-15, E-16, E-18, and E-39(c)] --

NOTES:

Article E-70. Utilities. - Pending the extension and connection of permanent water and permanent electric power, the contractor shall obtain temporary electric power at his own expense**. In the absence of provisions to the contrary, the contractor shall pay for all utilities services until the final acceptance by Architect and/or Owner has been executed or until the work is occupied, whichever is the earlier**. [See also Article E-9] If building is phased and portions of the building are occupied by Owner prior to final acceptance of entire structure, the cost of utilities for the occupied portion of the building will be pro-rated based upon the square footage of the building occupied by the Owner.

NOTES:

Article E-71 Form of Agreement. - The form of agreement shall be executed on Form No. 418, specimen of which is attached hereto. [See also Article E-1]

Attachment to Article E-71: Form No. 418, "FORM OF AGREEMENT BETWEEN CONTRACTOR AND OWNER"

NOTES:

FORM OF AGREEMENT BETWEEN CONTRACTOR AND OWNER

THIS AGREEMENT made the _____ day of _____ in the year Nineteen Hundred and _____ by and between _____
_____
_____

hereinafter called the Contractor, and _____
_____

hereinafter called the owner,

WITNESSETH, That the contractor and the owner for the considerations hereinafter named agree as follows:

1. SCOPE OF THE WORK. - The contractor shall furnish all of the materials and perform all of the work shown on the drawings or described in the specifications entitled _____
_____
prepared by _____
acting as and in these contract documents entitled the architect; and shall do everything required by this agreement, the general conditions of the contract, the specifications or the drawings.

2. TIME OF COMPLETION. - The work to be performed under this contract shall be commenced _____ and shall be completed _____

3. THE CONTRACT SUM - The owner shall pay the contractor for the performance of the contract, subject to additions and deductions provided therein, in currents funds as follows:
_____
_____

4. PROGRESS PAYMENTS. - The owner shall make progress payments on account of the contract as follows: On or about the 25th of each month 90 per cent of the value, based on the contract prices, of labor and materials incorporated in the work and of materials suitably stored at the site thereof up to the 1st say of that month, as estimated by the architect, less the aggregate of previous payments, until one-half of the contract sum is due. Payments will be made between the 15th and 20th of the following month.
If the work is.....

(a) On or ahead of the constructions progress schedule; and
(b) There are no breaches of orders of condemnation; and
(c) There is no delinquency in the filing of the final breakdown and accounting, together with vouchers, on force account work as referred to in Subparagraph (k) and (n) of Article E-15 of the general conditions when one-half of the contract sum is due no further retainage will be withheld by the owner from payments to the contractor unless...

Event (a) The percentage of work complete as set forth in Column (8), Line D, of Form 36-3 falls behind the percentage required by the construction progress schedule by as much as 15 per cent; or
Event (b) The contractor breaches an order of condemnation; or

Event (c) The contractor becomes delinquent in regard to the filing of the final breakdown and accounting, together with vouchers, on force account work as referred to Subparagraphs (k) and (n) of Article E-15 of the general conditions,

in which event or events the owner shall reinstate the 10 percent retainage on all periodical estimates due to be paid while one or more of the events continues to exist. The contractor will be given written notice of the reinstatement of the retainage. If the contractor...

(a) Recovers all lost time and puts the work back on schedule; and
(b) Remedies all breaches of orders of condemnation; and
(c) Supplies a proper breakdown and accounting on force account work

the sums withheld while either or all of the events existed will be converted to an additional lump sum and held by the owner until final completion, and no further retainage will be withheld unless...

(1) Event (a) recurs, or
(2) Event (b) recurs, or
(3) Event (c) recurs

in which event or events the owner shall reinstate the 10 per cent retainage on all subsequent periodical estimates. At the discretion of the owner, the retainage of each subcontractor may be released separately as he completes his work. An application for release of a subcontractor's retainage shall bear the certificates of the subcontractor, the contractor, and the architect that the subcontractor's work has been fully performed and that the sum for which payment is requested is due by the contractor to the subcontractor. Checks releasing a subcontractor's retainage shall be made payable to the contractor, the contractor's surety, and the subcontractor and shall be mailed to the contractor's surety. This article does not create any contractual relationship between the owner and the subcontractor or any duty of the owner to any subcontractor. All warranties shall run from the date of the final certificate of the architect unless otherwise expressly provided in the contract. Payments pursuant to this article shall in no way diminish, change, alter or affect the rights of the owner under the contract documents.

5. FINAL PAYMENT. - (a) - Final payment shall be due _____ days after execution of the final certificate by the architect, provided that all other requirements of the contract shall have been met in full. Final payment shall be made by a check payable jointly to the contractor and surety and shall be mailed to the surety.

(b) - Upon receipt of written notice from the contractor pursuant to Article E-41 of the general conditions that the work is ready for final inspection, the architect shall promptly make such inspection, and when he finds the work complies with the contract and when the contract shall have been fully performed he shall promptly issue a final certificate, over his own signature, stating that the work provided for in this contract has been completed under the terms and conditions thereof, and that the entire balance found to be due the contractor and noted in final certificate, is due and payable.
(Form No. 418) (10-31-74)

(c) - Before issuance of final certificate, the contractor shall submit evidence satisfactory to the architect that all payrolls, material bills, and other indebtedness connected with the work have been paid.

(d) - If full completion of the work is materially delayed through no fault of the contractor, and the architect so certifies, the owner shall, upon certificate of the architect, and without terminating the contract, make payment of the balance due for that portion of the work fully completed. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

6. THE CONTRACT DOCUMENTS. - The general conditions of the contract, the specifications, the drawings, the signed proposal form, and the notice of acceptance of the said proposal together with this agreement form the contract, and they are as fully a part of the contract as if hereto attached or herein repeated. The drawings and specifications shall be identified by the architect pursuant to the general conditions.

7. BONDS. - The contractor shall furnish both a performance bond and a payment bond and shall pay premium thereon. The performance bond shall guarantee the full performance of the contract.

IN WITNESS WHEREOF the parties hereto have expected this agreement the day and year first written above.

Contracting Firm: _____

By: _____

Title: _____

Date: _____

Notary: _____

****

COUNTY BOARD OF EDUCATION OF RICHMOND COUNTY

By: _____

Title: _____

Date: _____

Notary: _____

(Form No. 418)
(10-31-74)

SECTION F

SPECIAL CONDITIONS

F-01 Co-Ordination of Construction:

A - Pre-Construction Conference

Before any work is started, the Contractor, major subcontractors and superintendent for construction shall meet with the Architect/Owner's Representative to coordinate all new construction and to allow minimum disruption of existing facilities.

B – Construction Progress Meetings (OAC Meetings)

Construction project meetings will be formally held a minimum of twice per month. The CONTRACTOR is responsible for preparing meeting agenda, schedules and logs needed for review and conducting the meeting. Meetings will be documented with meeting minutes issued by the Contractor within 3 days of the meeting. Format of the meeting and agenda requirements will be established by the Program Manager. As required in Section E, schedule updates and submittal logs will be provided at these meetings.

C - Security

New construction shall be left secure at the end of each day. The Contractor is responsible for any damages, loss of items, etc. due to this deficiency

D - Material Storage

(1) Any exterior on-site storage required by the Contractor shall be inside the temporary fenced area.

(2) Exterior storage facilities shall be furnished by the Contractor and erected inside the temporary fenced area.

(3) The Contractor shall provide, maintain and remove where directed suitable, substantial, water tight, secure storage for protection of material used in this work. Damaged, defective or unsuitable wet or damp materials shall be removed promptly from the site. Polyethylene covers are not acceptable. All roofing materials are stored under ventilated tarpaulins completely covered and raised off the ground.

F-02 SMOKING: The Contractor shall post notice and prohibit employees from using or displaying tobacco products, including smokeless tobacco, while the employee is on duty at the assigned location, for the duration of the project. There shall be no use of any tobacco product on any property of the Richmond County Board of Education.

F-03 TRASH DISPOSAL: The Contractor shall allow no trash to accumulate outside the buildings or work area. Area shall be cleaned at the close of each working day. Trash shall be disposed of off the school site. Burning of the material on the site will not be permitted.

F-04 FENCING:

The Contractor shall maintain and erect construction fencing and gates around the new construction area to provide protection of the public and Owner during the execution of the Contract.

(1) Construction fence with metal tee studded steel posts with clamps. Install 6'-0" non-climbable heavy gauge wire fencing. Posts shall be spaced 10'-0" o.c. or less (4"x4" wood posts may be used in lieu thereof).

(2) Provide gates at such locations as necessary, cross-braced and hung on heavy strap hinges, and provide hasps and padlocks.

(3) This fence shall be erected before any work is started and in accordance with schedule approved by the Owner and Architect. On completion of the work or when directed by the Architect/Program Manager, the fences shall be removed by the Contractor and shall become his property and be removed from the site.

F-05 SANITATION:

The Contractor shall provide from the beginning of work washing facilities and temporary enclosed toilets for use of workmen on job. Such facilities shall be maintained in a clean and sanitary condition meeting all health standards throughout their use. The Contractor shall not permit any sanitary nuisance in or about the work area. Toilet facilities shall be located outside of the building work area.

F-06 PERMITS:

A - All permits, licenses, fees, electrical, sewer or water tap costs, etc., required for construction to be obtained and paid for by the Contractor.

F-07 OSHA

A - Every safety precaution will be taken during all stages of construction. All OSHA Safety requirements will be adhered to.

F-08 SAFEGUARDS:

A - Contractor will be held liable for all damages to personal and real property as a result of his negligence to provide protective measures.

B - When the need for protection installed no longer exists, the Contractor shall remove such protection devices.

F-09 TEMPORARY HEAT & AIR CONDITIONING:

A - The Contractor shall provide as his own expense temporary heat to protect all work and materials against injury from dampness and cold and to dry out building. Maintain building at a minimum of 60^{o} during working hours, after building is "dried-in"..

F-10 CUT-IN AND METERS:

A - Contractor is to apply for, pay for and install all utility cut-in and meters.

F-11 PROTECTION:

A - Preserve in operating condition all active utilities traversing the project site; protect manholes, catch basins, valve boxes and other appurtenances. Repair damage to any such utility, due to work, under this contract, to the satisfaction of the Architect. Care must be taken to protect and preserve all trees within the site that do not fall within the building area itself.

F-12 MATERIALS AND PRODUCTS CONTAINING ASBESTOS

A - The use of asbestos in any product incorporated within these specifications by any Contractor, Subcontractor, Manufacturer or material supplier is prohibited.

It is the intention of the Architect not to specify, approve or use any material that contains asbestos in any form. If materials included in these specifications contain asbestos, it shall be interpreted to be unknown to Architect. The Contractor, subcontractors, material suppliers and manufacturers shall notify Owner and Architect of materials containing asbestos and shall not supply or incorporate such materials in this project. If installed by the Contractor, it will be removed at the Contractor's expense.

F-13 JOB SITE SAFETY:

A - Job site safety shall be the sole responsibility of the Contractor.

F-14 "ALL RISK" BUILDERS RISK INSURANCE:

A - General Contractor shall purchase and maintain during the full course of construction "All-Risk" Builders Risk Insurance Coverage which names the Contractor, Owner, the Architect, and Engineers as co-insured.

F-15 SHOP DRAWINGS:

A - Contractor shop drawings shall be reviewed only for general conformance with the intent of design for and for general compliance with the construction contract.

F-16 CONTRACT DOCUMENTS:

A - The Contractor is responsible for examining all contract documents to determine if all drawing sheets and specification sheets contained in the sets agree with their respective indexes. The Architect will be notified prior to Bidding of any sets not complete. Any incomplete sets will be replaced.

F-17 Construction documents shall be issued to the contractor in a reasonable number in which it will take to construct the project. Any drawings above that number shall be issued at the contractor's expense. The contractor is allotted the following:

Cost of project	sets of drawings/specs
$ 50,000.00 or less	8

$ 100,000.00 or less	10
$ 250,000.00 or less	12
$ Above $250,000.00	15

F-18 SANITARY ARRANGEMENTS: The contractor shall post notice and take such precautions to keep the premises and all portions of the building clean and sanitary at all times. Temporary enclosed toilets are to be erected. These toilets are to be maintained in a sanitary condition by the General Contractor, and comply with State and Health Department requirements. The toilets of the Board of Education are not to be used by the contractor. The contractor is responsible to make sure that all employee (subs) use these temporary toilets.

F-19 STORAGE AND CARE OF MATERIALS: The contractor shall provide, maintain and remove when directed watertight storage for protection of materials used in this work. Damaged or defective materials shall be removed from the site.

F-20 CONTRACTOR'S FIELD OFFICE: At the beginning of construction, the contractor shall maintain an enclosed field office, complete will all pertinent plans, specifications, and shop drawings. A temporary telephone shall be installed for the duration of construction. Space for review of drawings by Architect and Owner shall be provided.

F-21 SHOP DRAWINGS AND SAMPLES:

(A) Shop Drawings

(1) General Contractor shall check, approve and submit all shop drawings to Architect on sepia paper with positive side up or on original tracings. Sepias shall be a good quality, legible - do not fold.

(2) Copies Required:
a. 1 Sepia or original (Contractor checked and approved).
b. 2 prints of Contractor checked and approved drawings.

(3) Reproducible prints (sepias) will be returned to the General Contractor with Architect's Review including information as to changes required marked thereon.
Architect will retain print and make such additional copies as he may required for his own information and file.

(4) Where appreciable changes are required, Architect may require that drawings be revised, corrected, and resubmitted in accordance with subparagraph, (1) and (2) above.

(5) Shop drawings shall comply with Architect's Review prior to manufacturing or fabricating any item or items in the project requiring shop drawings.

(B) Samples

(1) Samples required under various Divisions of work shall be delivered to and stored at the job site until checked and approved, or disapproved. Resubmit samples as required.

(2) RELEASE OF SAMPLES - When samples have served the purpose for which submitted, Contractor shall notify respective suppliers who may arrange for removal of samples. If, within, two

weeks of notice, samples have not been removed, Contractor may dispose of them at his discretion.

(C) Manufacturer's Literature - Submit number of copies as required under various divisions of work.

F-22 BATTERBOARDS, LINES AND LEVELS: The contractor shall lay out the lines of the building, checking them with the lot lines. He shall mark the lines of the building on solidly constructed batter boards. The contractor shall maintain these batter boards and shall direct his engineer to run and test all lines and levels from time to time. The contractor shall be help responsible for the accuracy of the whole work throughout its progress.

F-23 SHOP DRAWINGS AND SUBMITTALS: Shop drawings and submittals are requested and checked by Architect to assist Contractor in confirming compliance with contract documents and shall be accepted by Architect subject to the following conditions:

A. Contractor shall check drawings, mark corrections and stamp drawings. Shop drawings and submittals shall not be accepted unless so indicated.

B. Changes from contract documents shall be clearly indicated on drawings and accompanied with letter indicating reasons for change

C Under no circumstances shall contract requirements be changed by shop drawings unless specifically approve by Architect and Owner. Failure of Architect to detect such a change does not justify changing contract requirements even if drawings are marked "Approved" or "No Exceptions" or "Note Markings".

D. Material and equipment ordered, fabricated and delivered under conditions described in Paragraph "C" above shall be removed, replaced and corrected by Contractor at no additional cost to Owner.

E. Drawings and submittals poorly prepared and requiring numerous corrections shall be returned without complete check and corrections marked for resubmittal.

F. Submittals shall be complete. If shop drawings, samples and submittal data are required all shall be submitted to Architect at the same time. Parts of an incomplete submittal shall not be accepted and shall be returned to Contractor until complete submittal is received.

G. Architect's drawings shall not be duplicated or copied for use as shop drawings.

F-24 FINAL INSPECTION PROCEDURE

After all work is complete and Contractor submits request to Architect, including list of incomplete work which is beyond control of Contractor, Architect shall commence final inspection procedure.

A. Purpose - Final inspection is not intended to provide Contractor with list of incomplete work which he uses to complete project, but is for the purpose of final acceptance, final payment and occupancy by Using Agency

B. Preliminary Final Inspection - Conducted by Architect/Program Manager, Engineers and Contractor to confirm that all work is complete and to prepare list of items which must be corrected prior to final inspection.

C. Final Inspection - Conducted by Architect/Program Manager (Owner's Representative), Engineers, and Contractor to confirm that all work is complete.

D. Final Inspection Follow-Up - Conducted by Architect/Program Manager, Engineers, and Contractor to confirm that defective and incomplete items listed during final inspection have been completed, and to determine that final payment, including retainage, is due.

E. False Starts - Architect/Program Manager is not obligated to conduct numerous inspections in order to assist Contractor to complete project. Any inspections required due to incomplete work, other than three listed above, shall be deemed as false starts or to have been requested prematurely, and next inspection shall not be conducted until Architect and Engineers have been reimbursed by Contractor for wasted time due to previous false start.

F. Determination That Project Is Ready For Final Inspection - Architect and Engineers shall be responsible for determining that their respective phases of work are complete and that portion or project is ready for final inspection. If, after commencing an inspection, project is determined not to be ready for inspection, that shall constitute a false start.

F-25 REMOVAL OF WASTE FROM SITE:

Contractor shall have a solid waste handling permit by rule issued by the Georgia Environmental Protection Division complying with Section 391-3-4-.06(3)(a) of the Rules for Solid Waste Management:

1. Vehicle Construction: Vehicles or containers used for collection and transportation of garbage and similar putrescible wastes, or mixtures containing such wastes, shall be covered, substantially leakproof, durable, and of easily cleanable construction.

2. Vehicle Maintenance: Solid waste collection and transportation vehicles shall be cleaned frequently and shall be maintained in good repair.

3. Littering and Spillage: Vehicles or containers used for the collection and transportation of solid waste shall be loarded and moved in such a manner that the contents will not fall, leak or spill therefrom and shall be covered when necessary to prevent blowing of material from the vehicle.

4. No regulated quantities of hazardous wastes may be collected and transported except in accordance with the provisions of the Georgia Hazardous Waste Management Act, O.C.G.A. 12-8-60 et seq.

5. Local Ordinances: It is the responsibility of the collector to comply with all local rules, regulations, and ordinances pertaining to operation of solid waste collection systems.

6. All wastewater from cleaning of vehicles must be handled in manner which meets all applicable environmental laws and regulations.

7. All collected solid waste must be deposited only in a permitted solid waste handling facility authorized to receive the applicable waste types.

8. After July 1, 1992, municipal solid waste may not be transported from a jurisdiction to a municipal solid waste disposal facility located in another county unless the jurisdiction generating the waste is actively involved in and has a strategy for meeting the State-wide goal of waste reduction by July 1, 1996.

The contractor shall disclose the landfill in which they will be using in subject project.

The contractor shall provide to the Richmond County Board of Education solid waste tipping fee receipts from the landfill.

Definitions

"Collector" means the person or persons as defined herein who, under agreements, verbal or written, with or without compensation does the work of collecting and/or transporting solid wastes, from industries, offices, retail outlets, businesses, institutions, and/or similar locations, or from residential dwellings, provided however, that this definition shall not include an individual collecting and/or transporting waste from his own single family dwelling unit.

"Construction/Demolition Waste" means waste building materials and rubble resulting from construction, remodeling, repair, and demolition operations on pavements, houses, commercial buildings and other structures. Such wastes include, but are not limited to asbestos containing waste, wood, bricks, metals, concrete, wall board, paper, cardboard, inert waste landfill material, and other nonputrescible wastes which have a low potential for groundwater contamination.

Rev 4-17-00

Section G

Project Close-Out Requirements and Procedures

Article G-01. General Provisions

The following *Project Close-Out Requirements and Procedures, Articles G-01 to G-11*, inclusive, bound herein and hereafter referred to as the "Project Close-Out Requirements and Procedures" provide the requirements and procedures for the close-out of the project and are binding to the contract. There are references to these and other requirements and procedures in other sections of the specifications. Requirements and procedures in other sections that are in addition to those in this section are also binding to the contract. Where conflicts arise between the requirements of this section and other sections of the specifications, the more stringent requirement will govern.

Contractor will provide two hard copies of all closeout documents in the section and one electronic copy on a flash drive. All documents will be organized and clearly labeled.

Article G-02. Close-Out Requirement Retainages for Final Payment

(a) The completion of the Close-Out Requirements and Procedures is critical to the Owner's ability to manage, operate and maintain the facility and is therefore a valuable part of the project. To help ensure the proper completion of the Close-Out requirements and procedures, the following values are established for each of the components of the Close-Out requirements. The value for each component will be held as retainage until ALL requirements of that component are submitted, reviewed and approved. NO partial release of the retainage for a component will be made; the retainage for a component will only be released when that component is 100% complete and approved.

(b) The following are the retainage values for each component of the Close-Out requirement. Items (a), (b) and (c) are required to be completed and turned over to the Owner prior to or at the time of substantial completion. If a component (d) through (h) is incomplete after 120 days, the Contractor will forfeit the retainage for the component to the Owner as compensation for the efforts that will be required by the Owner to obtain/complete the items in the component.

		Contracts < $2 Million	Contracts $2 - $5 Million	Contracts > $5 Million
(a)	Initial Owner Hand-Off Session	$2,000	$5,000	$5,000
(b)	Close-Out Documents	$5,000	$5,000	$10,000
(c)	Training	$5,000	$5,000	$5,000
(d)	Certifications & Warranties	$5,000	$5,000	$10,000
(e)	Spare Part, Tools & Attic Stock	$2,000	$5,000	$5,000
(f)	As-Builts, Drawings & Reports	$3,000	$5,000	$10,000
(g)	O&M Manuals	$2,000	$3,000	$5,000
(h)	Finishes Listing	$2,000	$2,000	$2,000

Note: Various Close-Out Documents must be submitted and approved by the Architect and Owner before **ANY** retainage is released, so the retainage holdings above apply only after

the required documents to reduce the overall project contingency have been submitted and approved. See the following articles and General Conditions for requirements for reduction of retainage.

Article G-03. **Initial Owner Hand-Off Session**

(a) At the direction of the Architect and Program Manager, in coordination with the Owner, the Contractor will conduct an Initial Owner Hand-Off Session for the project **at the time of substantial completion and prior to the time when the Owner takes occupancy of the building**. In order to prepare for the transition from Contractor control of the construction site to the Owner control of the new facility, an Initial Owner Hand-Off Session will be conducted. This session is NOT intended to be the training session for the individual systems and equipment required by the contract. This session is intended to be an opportunity to familiarize the District staff with the facility and provide them with the necessary documentation and orientation of the systems in the building(s) so District staff may properly and effectively manage the facility once it is turned over.

(b) Issues to be covered at the Owner Hand-Off Session:

a. Draft O&M Manuals: The Contractor will provide draft manual of all mechanical, electrical and motorized equipment for the Owner's use until the final O&M Manuals have been submitted, reviewed and approved by the Architect.

b. Keys and Access Codes: The Contractor will provide an inventory of which keys and codes have been provided and which are outstanding, as well as a schedule for providing the remaining keys and codes.

c. Training Status : The participating parties will review the training status for required Owner training, including an inventory of which trainings have been conducted and which are outstanding, as well as a schedule for conducting the remaining training.

d. Subcontractor Walkthrough: The subcontractors will walk the maintenance staff through the building and provide an orientation on all systems installed by subcontractor as well as review basic safety, operation and monitoring processes. If the formal Owner training has been conducted prior to this session, the orientation for those systems will not be necessary. If the formal training has not been completed, this orientation will provide the Owner's staff with the basic information to allow them to occupy and "operate" the systems until the formal training is completed.

e. Interim Set of Project Plans: The Contractor (with the assistance of the Architect) will provide the Owner with an interim set of project plans and specifications for use on-site until the final as-built plans have been submitted, reviewed and approved by the Architect.

f. Maintenance Responsibility Turnover: The Contractor will provide a **written notification** to the Owner regarding which items/areas the Contractor is turning over for the Owner to assume responsibility for maintenance and operations. This procedure eliminates confusion regarding which party is responsible for maintenance and operation of certain systems, equipment, grounds and the like.

(c) Required Participation in the Owner Hand-Off Session:

a. Required Contractor/Subcontractor Personnel to be present at a minimum:
   i. General Contractor Project Manager and Superintendent
   ii. HVAC Subcontractor Superintendent
   iii. Electrical Subcontractor Superintendent
   iv. Plumbing Subcontractor Superintendent
   v. Other Subcontractors as requested by the Owner, Architect or Program Manager

b. Owner Representatives who may be present:
   i. Director of Maintenance and Custodial Services, or his designated representative
   ii. School/Facility Custodial Staff
   iii. Maintenance Department HVAC Supervisor
   iv. Maintenance Department Electrical Supervisor
   v. Maintenance Department Plumbing Supervisor
   vi. Assistant Director of Construction and Renovation

c. Project Architect and Engineers

d. Program Manager

(d) Initial Owner Hand-Off Session Checklist

a. The results of the Initial Owner Hand-Off Session will be documented on the Initial Owner Hand-Off Session Checklist included herein.

b. A copy of the completed Checklist will be submitted to the Owner (through the Architect) as a component of the project close-out process in order to provide a record of the items covered as well as a roster of the individuals who participated in the Initial Owner Hand-Off Session.

Initial Owner Hand-Off Session Checklist

School/Facility:

Date:

	Draft O&M Manuals	Keys	Access Codes	Training Status	Walkthrough with Subcontractor
HVAC - Mechanical Equipment					
HVAC Controls					
Lighting Controls					
Fire Alarm					
Intercom					
Security/Intrusion System					
Video Surveillance					
Video Distribution System					
Data/Voice System					
Athletic Equipment (bleachers, goals, etc)					
Elevators					
Building Keys	Required to be sent directly to Maintenance Department				
Landscape and Field Irrigation Sys.					
Other:					
Other:					
Other:					

Interim Set of Plans and Copy of Specifications

Maintenance Responsibility Turnover Notification (List/Letter)

Walk through with Maintenance Staff and Key subcontractors

In order to prepare for the transition from Contractor control of the construction site to the Owner control of the new facility, an Initial Owner Hand-Off Session will be conducted. This session is NOT intended to be the training session for the individual systems and equipment required by the contract. This session is intended to be an opportunity to familiarize the District staff with the facility and provide them with the necessary documentation and orientation of the systems in the building(s) so District staff may properly and effectively manage the facility once it is turned over.

Initial Owner Hand-Off Session Attendance Roster

School/Facility:

Date:

Contractor and Subcontractors:	
Name	**Company**

District and School Staff	
Name	**Department**

Architect and Engineers	
Name	**Company**

Program Manager	
Name	**Company**

Article G-04. **Early Certifications and Document Requirements**

(a) The Contractor will provide copies of the Early Certifications and Documents from Permitting Agencies and Governmental Agencies which are required for occupancy of the facility. **The complete submittal must be made at the time of project turn over and Owner occupancy, or earlier if certifications and inspections are completed well ahead of Owner occupancy. The Early Certifications and Documents will be submitted in a complete package to the Owner through the Architect.**

(b) The following Certifications, Documents and Items are Required:

a. Certificate of Occupancy
b. Fire Alarm System Certification
c. Fire Sprinkler System Certification
d. Augusta/Richmond County Building Inspector Letter of Completion
e. Augusta/Richmond County Fire Department Life Fire Safety Report
f. Department of Labor Boiler Certificates
g. Department of Labor Elevator Certificates
h. Certificate of Water System Disinfection
i. Permanent Keys

Article G-05. **Close-Out Documents**

(a) The General Conditions and Contract require specific contractual documents to be provided by the Contractor at Close-Out in order to complete the obligations of the Contractor and to provide required contractual protections for final payment. The Close-Out Documents shall be submitted as a complete package to the Owner through the Architect.

(b) The following are the minimum contract Close-Out Documents required for final payment. Additional documents may be required by the General Conditions, Contract or other specifications provided in the Bid and Contract Documents. **Items "a" through "e" MUST be submitted before ANY project retainage can be released.**

a. AIA G707 – Consent of Surety Company for Final Payment
b. AIA G706 – Contractor's Affidavit of Debts and Claims
c. AIA G706A – Contractor's Affidavit and Release of Liens from
i. General Contractor
ii. Sitework Subcontractor
iii. Mechanical Subcontractor
iv. Plumbing Subcontractor
v. Electrical Subcontractor
vi. Other Major Subcontractors
vii. Major Material Suppliers/Vendors
d. Statutory Affidavit
e. Non-Influence Affidavit
f. Certificate of Substantial Completion
g. Contractor's Written Guarantee on Company Letterhead
h. Contractor's Cleanup Letter on Company Letterhead
i. Contractor's Asbestos Letter on Company Letterhead (No Asbestos Used)

j. List of Subcontractors/Suppliers/Vendors (Must include services/materials provided, company name, address, phone numbers, contact person's name and e-mail address)
k. Low Voltage Systems Certifications (for systems other than Fire Alarm Systems Certification, which is required as part of Early Certifications and Documents)

Article G-06. **Training Requirements**

(a) The Contractor will provide training for all equipment and systems installed by the Contractor. The Contractor shall be responsible for scheduling all training with the Owner, in coordination with the Architect, through the Owner's designated representative and at a time convenient to the Owner's staff.

(b) Training Requirements:

(a) Two levels of training are required for systems and equipment.

i. The first level of training is for the District Maintenance Staff. The Contractor MUST provide training to CERTIFY the District Maintenance Staff to the level of being "FACTIORY CERTIFIED" to operate, maintain, service and repair any equipment, system or device that requires certified personnel to operate, maintain or repair these items in order to maintain warranties and operate the system/equipment in compliance with codes and regulations. The Owner must be able to operate, maintain and repair ALL equipment, systems and devices installed in the facility WITHOUT the assistance of the Contractor, manufacturer or other outside entity.

ii. The second level of training is for the Facility Staff. This will be the user level training on the operation of the equipment/systems and will be performed separately from the District Maintenance Staff training. This training will be conducted on-site and will be preformed by the Manufacturer's certified and authorized training personnel. Applicable subcontractor/vendor personnel will be present at the training session along with the Contractor's superintendent. The District Maintenance Staff will also attend this training session to observe the training being conducted.

(b) The Contractor will provide at the time of training all special tools, cables, equipment, software, laptops and the like that may be required for the monitoring, operation, maintenance and repair of the systems, equipment and devices.

(c) The Contractor will generate an attendance roster of the training session showing the date, time, location and names, company and phone numbers of everyone attending the training session including the Contractor/Subcontractor/Vendor and the Owner's staff.

(d) The Contractor will submit a Close-Out Package for Training to the Owner to document the training conducted with the following documents:

i. Letter on Company Letterhead indicating that ALL required training has been completed;
ii. List of all training sessions held both on-site and off-site;
iii. List of all tools, cables, equipment, software, laptops or other devices that were provided to Owner during training; and
iv. Copies of attendance rosters for all training sessions.

(e) Unless designated otherwise, the Contractor will be expected to provide the CERTIFIED level of training for the District Maintenance Staff for the following systems/equipment:

i. ALL HVAC Equipment
ii. HVAC Controls System
iii. Fire Alarm System
iv. Intercom System
v. Video Distribution System
vi. Data and Voice Systems
vii. Security Systems
viii. Video Surveillance Systems
ix. Generators
x. Kitchen Equipment

(f) On-site user level training will be required at a minimum for the following systems. Other training may be required for systems not listed that require operation and/or maintenance activities from the Owner for the routine operation of the facility.

i. ALL HVAC Equipment
ii. HVAC Controls System
iii. Boilers
iv. Booster Pumps
v. Water Treatment Systems
vi. Fire Alarm System
vii. Intercom System
viii. Video Distribution System
ix. Data and Voice Systems
x. Security Systems
xi. Video Surveillance Systems
xii. Generators
xiii. Kitchen Equipment

xiv. Carpet Maintenance
xv. Science Casework

Article G-07. Certifications, Warranties and Bonds

(a) Certifications, Warranties and Bonds will be provided in a separate Close-Out Package. This is to be provided in a 3-ring binder with all documents in clear protective covers. A directory with a listing of all documents will be provided at the front of the book. The Directory will include a list of products, manufacturers, length of warranty and contact information for each manufacturer for extended warranties after Contractor's warranty/guarantee has expired to include address, phone number and e-mail address. The Certifications, Warranties and Bonds Close-Out Package will be submitted in one complete package to the Owner through the Architect.

(b) The items listed in Item (c) below are required to be included in the Certifications, Warranties and Bonds Close-Out Package. Other Certifications, Warranties and Bonds that are required by the Architect or Engineer in the technical specifications, but not listed here, MUST also be included in the Close-Out Package.

(c) Required Certifications, Warranties and Bonds
   a. Asbestos Abatement Certification
   b. Asbestos Tipping Receipts
   c. Notice of Termination (N.O.T.) for Erosion Control
   d. Contractor Certification that final grades are per plans
   e. Roof Warranty – 20 Year Minimum
   f. Mechanical Diagnostic Code Data and Troubleshooting
   g. Mechanical Equipment – 5 year compressor warranty
   h. Cooling Tower Performance Certification
   i. Lightning Protection Certification
   j. Generator – 5 year warranty
   k. Termite Treatment Bond
   l. Termite Treatment Maintenance Proposal/Agreement
   m. Intrusion Detection System – 2 Year Maintenance Agreement
   n. Video Surveillance System– 3 Year Service Warranty
   o. Carpet Installation – 1 Year Guarantee
   p. Carpet Material – 3 Year Guarantee / 15 Year Warranty
   q. MSDS Sheets on mastic for carpet & tile
   r. Toilet Partitions – 10 Year Warranty
   s. Science Casework – 1 Year Guarantee
   t. Media Casework – 1 Year Guarantee
   u. Casework – 3 Year Guarantee/ 10 Year Warranty
   v. Irrigation System Warranty

w. Certificates from Manufacturers of Major Components (see Article E67 of the General Conditions)
    i. Major Components of AC Systems: cooling towers, compressors, condensers, absorption units, chillers, fan coils air handlers, boilers, pumps and temperature controls
    ii. Major Components of Heating Systems: boilers, pumps, air handlers, unit ventilators, fan coils, temperature controls and chemical feed systems
    iii. Major Components of Plumbing Systems: boilers, pumps, sewage pumps and water treatment systems
    iv. Elevators, Lifts, Escalators
    v. Incinerator Systems

Article G-08. **Spare Parts, Tools and Attic Stock**

(a) As part of the project requirements the Contractor will be required to turn over spare parts, tools and attic stock to the Owner at project turnover. These items are to be turned over to the Director of Operations (or his designee) (RCSS Maintenance and Facilities, 2956 Mike Padgett Hwy, Augusta, GA 30906

(b) The Contractor will be required to coordinate the turnover of ALL the parts, tools and attic stock with the Director of Operations, Maintenance and Facilities or his designated representative. At the time of turnover, the Contractor will provide a DETAILED list of ALL items being turned over to include list of each part and item, colors, sizes, quantities or other pertinent information. The Contractor MUST obtain the signature on a Letter of Transmittal, by the Director of Operations, RCSS Maintenance and Facilities, or his designee, though the Architect..

(c) The Contractor will submit to the Owner a Close-Out Package for Spare Parts, Tools and Attic Stock in order to document the items turned over. This submittal will include a listing of all items turned over, as well as the signature of the Owner's staff person acknowledging receipt of the items. This submittal will be made to the Owner through the Architect.

(d) The following items are required by the Owner as <u>minimum</u> items to be turned over. Other items as specified by the Architect and Engineer in their specifications will also be turned over with the same process and must be documented in the same manner as part of the turn over submittal. In cases where the Owner and Architect/Engineer require items of the same specification section, the Contractor will provide the quantity which is the GREATER of the two requirements.

    a. VCT/SVT - 1% of the field tile and 1 box of each accent color
    b. Ceiling Tile – 1% (minimum of 2 boxes) for standard tile, 1 box of other types
    c. Paint – 1 gallon new and unopened of EACH color, and type of paint. Clearly labeled
    d. Carpet Tiles – 1% of each color
    e. Irrigation systems – 10% of each type of head when 10 or more are installed
    f. HVAC Filters – 1 complete set for ALL units, IN ADDITION to filter installed at turnover.
    g. HVAC Controls – 10% of Boards when 10 or more are installed
    h. HVAC Controls – Laptop for operation of control system (Compliant with current RCSS IT standards for administrative users

i. Fire Sprinkler system – spare heads and tools as required by code.
j. Spare Parts, Tools and Attic Stock per the requirements of the Architect and Engineer specifications and drawings

Article G-09. As-Builts, Required Drawings and Reports

(a) The General Conditions and Contract require specific As-Builts, Drawings and Reports to be provided by the Contractor at Close-Out in order to complete the obligations of the Contractor. As-Builts, Required Drawings and Reports will be submitted to the Owner through the Architect.

(b) All drawings will be provided in hard copy format and in electronic format (PDF).

(c) The following are the minimum As-Builts, Drawings and Reports required for final payment. Additional documents may be required by the General Conditions, Contract or other specifications provided in the Bid and Contract Documents.

a. Registered Land Survey of Site Utilities. **Provide GPS locations** for the following: all exterior valves, switches, and disconnects, boxes, manholes, connections or other key components of the site utility systems; empty 4" PVC sleeves under all new roads and sidewalks for future electrical or mechanical systems; empty conduits for electrical, cable, computer, sewer and water for future portable classrooms, future ball fields or structures (with concrete markers at stub out locations).
b. Registered Land Survey of Site Improvements
c. **Contractor As-Builts** of Contract Drawings
d. Fire Sprinkler System
e. Fire Alarm System
f. Landscaping and Ball field Irrigation System As-Builts
g. HVAC Test and Balance Reports
h. Other items required by the Architect and Engineer in the technical specifications and drawings

(d) The PROJECT ARCHITECT will provide the following documents to the Owner at the completion of the project. These are NOT the responsibility of the Contractor to obtain and submit.

a. Architect to provide AutoCAD of Floor Plan w/square footages for each space

b. Architect to provide DWG/DXF of ALL Drawings, Specifications and Changes to the design documents.

Article G-10. **O&M Manuals**

(a) For all items of mechanical or electrical equipment or apparatus installed which require operation or maintenance after occupancy, the Contractor shall furnish and deliver to the Owner (through the Architect) complete brochures and data as prepared and published by the manufacturers covering details regarding operation and maintenance.

(b) Requirements for Operation and Maintenance Manuals can be found in Article E-55 of the General Conditions.

(c) The Contractor will refer to the Architect and Engineer Technical Specifications to determine specifically what equipment and materials require the submission of Operation and Maintenance Manuals.

Article G-11. **Finishes Listing**

(a) The Contractor will provide a listing of all materials installed on the project which are exposed to view. This listing will include the material name, manufacturer, model number, style number, color name or number, and any other information necessary to enable the Owner to order replacement parts/materials which match those installed on the project. This listing will be submitted to the Owner through the Architect.

(b) The following items at a minimum must be listed on the Finishes Listing, if installed on the project:

a. Exterior
   i. Brick
   ii. Precast
   iii. Mortar
   iv. Metal trim
   v. Windows
   vi. Glass tinting
   vii. Caulk
   viii. Storefront
   ix. Paint
   x. Fascia and Soffits
   xi. Gutters and Downspouts
   xii. Metal roof
   xiii. Shingles
   xiv. Flashings and Coping
   xv. Canopies

b. Interior

i. Paint
ii. Caulk
iii. Carpets
iv. VCT
v. Vinyl base
vi. Stair treads, transitions, and similar equipment
vii. Ceramic tile
viii. Terrazzo
ix. Colored concrete
x. Gym floor sealer
xi. Gym floor striping paints
xii. Gym floor base
xiii. Gym wall pads
xiv. Bleacher seats
xv. Toilet partitions
xvi. Wood doors
xvii. Casework stains
xviii. Plastic laminates
xix. Solid surface tops
xx. Acoustical ceiling grid
xxi. Acoustical ceiling tile
xxii. Acoustical panels
xxiii. Curtains
xxiv. Blinds
xxv. Storefront

(c) Sample format for the Project Finishes Listing is included herein.

Project Finishes Listing

School/Facility: _____

Date: _____

Exterior	Manufacturer Name	Model Number	Style Number	Color Number	Other
Brick					
Precast stone					
Mortar					
Metal trim					
Window metal					
Glass tinting					
Caulk					
Storefront					
Paint					
Fascia & Soffits					
Gutters & Downspouts					
Metal roof					
Shingles					
Flashings and Coping					
Canopies					
Other:					
Other:					
Other:					

Interior	Manufacturer Name	Model Number	Style Number	Color Number	Other
Paint					
Caulking					
Carpets					
VCT					
Vinyl base					
Stair treads, transitions, etc					
Ceramic tile					
Terrazzo					
Colored concrete					
Gym floor sealer					
Gym floor striping paints					
Gym floor base					
Gym wall pads					
Bleacher seats					
Toilet Partitions					
Wood doors					
Casework stain					
Plastic laminates					
Solid surface tops					
Acoustical ceiling grid					
Acoustical ceiling tiles					
Curtains					
Blinds					
Storefront					
Acoustical panels					
Other:					
Other:					
Other:					

Contractor Affidavit under O.C.G.A. § 13-10-91 (b) (1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of Richmond County Board of Education has registered with, is authorized to use and uses the federal work authorization to use and uses federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91 (b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Work Authorization User Identification Number

_____
Date of Authorization

_____
Name of Contractor

_____
Name of Project

Richmond County Board of Education
Name of Public Employer

I hereby declare under penalty that the foregoing is true and correct.

Executed on _____, _____ 20___ in _____(city), _____ (state).

_____
Signature of Authorized Officer or Agent

_____
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME
ON THIS THE _____ DAY OF _____, 20_____.

_____
NOTARY PUBLIC

My Commission Expires:

_____

Subcontractor Affidavit under O.C.G.A. § 13-10-91 (b) (3)

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with (name of contractor) on behalf of Richmond County Board of Education has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A. § 13-10-91 (b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice of receipt of an affidavit from any sub-subcontactor that has contracted with a sub-subcontractor to forward, within five business days of receipt, a copy of such notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Work Authorization User Identification Number

_____
Date of Authorization

_____
Name of Subcontractor

_____
Name of Project

Richmond County Board of Education
Name of Public Employer

I hereby declare under penalty that the foregoing is true and correct.

Executed on _____, _____ 20___ in _____(city), _____ (state).

_____
Signature of Authorized Officer or Agent

_____
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME
ON THIS THE _____ DAY OF _____, 20_____.

_____
NOTARY PUBLIC

My Commission Expires:

_____

RICHMOND COUNTY BOARD OF EDUCATION
BOND ISSUE PROGRAM

BID DOCUMENTS

Owner

Richmond County Board of Education
864 Broad Street
Augusta, GA 30901

Program Manager

GMK Associates, Inc.
864 Broad Street
Augusta, GA 30901

SECTION 01 2100
ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contingency allowance.

1.02 CONTINGENCY ALLOWANCE

A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

B. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.03 ALLOWANCES SCHEDULE

A. Allowance #1: Contingency Allowance: Include the stipulated sum/price of $100,000.00 for use upon Owner's instruction for unforeseen conditions.

B. Allowance #2: Access Controls Allowance: Include the stipulated sum/price of $15,000.00 for labor and materials associated with the installation of access controls.

C. Allowance #3: Camera Allowance: Include the stipulated sum/price of $20,000.00 for labor and materials associated with the installation of security cameras.

D. Allowance #4: Georgia Power Allowance: Include the stipulated sum/price of $20,000.00 for work associated with the procurement of a new transformer.

E. Allowance #5: Fiber Relocation Allowance: Include the stipulated sum/price of $40,000 for the Owner's vendor to reestablish fiber connectivity in Murphey Middle School.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Preconstruction meeting.

C. Progress meetings.

D. Submittals for review, information, and project closeout.

E. Number of copies of submittals.

F. Requests for Interpretation (RFI) procedures.

G. Submittal procedures.

1.02 REFERENCE STANDARDS

A. AIA G716 - Request for Information; 2004.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 7000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

B. Make the following types of submittals to Architect:
   1. Requests for Interpretation (RFI).
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.
   8. Progress schedules.
   9. Coordination drawings.
   10. Correction Punch List and Final Correction Punch List for Substantial Completion.
   11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Attendance Required:
   1. Owner.
   2. Architect.
   3. Contractor.

B. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
   5. Designation of personnel representing the parties to Contract, _____ and Architect.
   6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   7. Scheduling.

C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.

B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's superintendent.

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Maintenance of progress schedule.
   7. Corrective measures to regain projected schedules.
   8. Planned progress during succeeding work period.
   9. Coordination of projected progress.
   10. Maintenance of quality and work standards.
   11. Effect of proposed changes on progress schedule and coordination.
   12. Other business relating to work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.03 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:
   1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
   2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.

C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
   1. Prepare a separate RFI for each specific item.
      a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
      b. Do not forward requests which solely require internal coordination between subcontractors.
   2. Combine RFI and its attachments into a single electronic file. PDF format is preferred.

D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.

E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.

1. Discrete and consecutive RFI number, and descriptive subject/title.
2. Issue date, and requested reply date.
3. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

3.04 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.

3.05 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
1. Product data.
2. Design data.
3. Shop drawings.
4. Samples for selection.
5. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

3.06 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
1. Certificates.
2. Test reports.
3. Inspection reports.
4. Manufacturer's instructions.
5. Manufacturer's field reports.
6. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner.

3.07 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:
1. Project record documents.
2. Operation and maintenance data.
3. Warranties.
4. Bonds.
5. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.08 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.09 SUBMITTAL PROCEDURES

A. General Requirements:
   1. Use a single transmittal for related items.
   2. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
      a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
   3. Schedule submittals to expedite the Project, and coordinate submission of related items.
      a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
      b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
      c. For sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Architect's approval, allow an additional 30 days.
   4. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
   5. Provide space for Contractor and Architect review stamps.
   6. When revised for resubmission, identify all changes made since previous submission.
   7. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
   8. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
   9. Submittals not requested will not be recognized or processed.

B. Product Data Procedures:
   1. Submit only information required by individual specification sections.
   2. Collect required information into a single submittal.
   3. Submit concurrently with related shop drawing submittal.
   4. Do not submit (Material) Safety Data Sheets for materials or products.

C. Shop Drawing Procedures:
   1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
   2. Do not reproduce Contract Documents to create shop drawings.
   3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

D. Samples Procedures:
   1. Transmit related items together as single package.
   2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

3.10 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.

C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.

D. Architect's and consultants' actions on items submitted for review:
    1. Authorizing purchasing, fabrication, delivery, and installation:
        a. "Approved", or language with same legal meaning.
        b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
            1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
        c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
            1) Resubmit corrected item, with review notations acknowledged and incorporated. Resubmit separately, or as part of project record documents.
    2. Not Authorizing fabrication, delivery, and installation:
        a. "Revise and Resubmit".
            1) Resubmit revised item, with review notations acknowledged and incorporated.
        b. "Rejected".
            1) Submit item complying with requirements of Contract Documents.

E. Architect's and consultants' actions on items submitted for information:
    1. Items for which no action was taken:
        a. "Received" - to notify the Contractor that the submittal has been received for record only.
    2. Items for which action was taken:
        a. "Reviewed" - no further action is required from Contractor.

END OF SECTION

SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary sanitary facilities.

B. Temporary Controls: Barriers, enclosures, and fencing.

C. Project identification sign.

1.02 RELATED REQUIREMENTS

A. Section 01 5100 - Temporary Utilities.

B. Section 01 5213 - Field Offices and Sheds.

1.03 TEMPORARY UTILITIES - SEE SECTION 01 5100

1.04 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.05 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 FENCING

A. See Section 32 3113 Chain Link Fences and Gates.

B. Provide custom printed wind screen along full perimeter of fence. Artwork to be provided by Architect.

C. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.07 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Paint surfaces exposed to view from Owner-occupied areas.

1.08 PROJECT IDENTIFICATION

A. Provide project identification sign of design and construction indicated on drawings.

B. Erect on site at location indicated.

C. No other signs are allowed without Owner permission except those required by law.

1.09 FIELD OFFICES - SEE SECTION 01 5213

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 5100
TEMPORARY UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Provision of electricity, lighting, heat, and water.

1.02 RELATED REQUIREMENTS

A. Section 01 5000 - Temporary Facilities and Controls:
   1. Temporary telecommunications services for administrative purposes.
   2. Temporary sanitary facilities required by law.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

1.04 TEMPORARY ELECTRICITY

A. Cost: By Contractor.

B. Provide power service required from utility source.

C. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.

D. Provide main service disconnect and over-current protection at convenient location and meter.

E. Permanent convenience receptacles may not be utilized during construction.

1.05 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain LED, compact fluorescent, or high-intensity discharge lighting as suitable for the application for construction operations in accordance with requirements of 29 CFR 1926 and authorities having jurisdiction.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Maintain lighting and provide routine repairs.

D. Permanent building lighting may be utilized during construction.

1.06 TEMPORARY HEATING

A. Cost of Energy: By Contractor.

B. Provide heating devices and heat as needed to maintain specified conditions for construction operations.

C. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.07 TEMPORARY WATER SERVICE

A. Cost of Water Used: By Contractor.

B. Provide and maintain suitable quality water service for construction operations at time of project mobilization.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 5213
FIELD OFFICES AND SHEDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary field offices for use of Contractor.

1.02 RELATED REQUIREMENTS

A. Section 01 5000 - Temporary Facilities and Controls:

1.03 USE OF EXISTING FACILITIES

A. Existing facilities shall not be used for field offices.

1.04 USE OF PERMANENT FACILITIES

A. When permanent facilities are enclosed with operable utilities, relocate offices into building, with written agreement of Owner, and remove temporary buildings.

PART 2 PRODUCTS

2.01 CONSTRUCTION

A. Portable or mobile buildings, or buildings constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors.

B. Construction: Structurally sound, secure, weather tight enclosures for office. Maintain during progress of Work; remove when no longer needed.

C. Lighting for Offices: 50 fc at desk top height, exterior lighting at entrance doors.

D. Fire Extinguishers: Appropriate type fire extinguisher at each office.

2.02 ENVIRONMENTAL CONTROL

A. Heating, Cooling, and Ventilating: Automatic equipment to maintain comfort conditions.

2.03 CONTRACTOR OFFICE AND FACILITIES

A. Size: For Contractor's needs and to provide space for project meetings.

B. Furnishings in Meeting Area: Conference table and chairs to seat at least eight persons; racks and files for Contract Documents, submittals, and project record documents.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install office spaces ready for occupancy 15 days after date fixed in Notice to Proceed.

3.02 MAINTENANCE AND CLEANING

3.03 REMOVAL

A. At completion of Work remove buildings, foundations, utility services, and debris. Restore areas.

END OF SECTION

SECTION 01 7800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project record documents.

B. Operation and maintenance data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

B. Individual Product Sections: Specific requirements for operation and maintenance data.

C. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
   3. Submit two sets of revised final documents in final form within 10 days after final inspection.

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

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Changes made by Addenda and modifications.

F. Record Drawings: Legibly mark each item to record actual construction including:

1. Field changes of dimension and detail.
2. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

B. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

C. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.
   2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Additional information as specified in individual product specification sections.

D. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data electronically for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate folders for each system.

C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

D. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

E. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

F. Drawings: Provide scanned versions of redlined record drawings.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Building demolition .

B. Selective demolition of built site elements.

C. Selective demolition of building elements for alteration purposes.

1.02 DEFINITIONS

A. Remove: Detach or dismantle items from existing construction and dispose of them off site, unless items are indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach or dismantle items from existing construction in a manner to prevent damage. Clean, package, label and deliver salvaged items to Owner in ready-for-reuse condition.

C. Remove and Reinstall: Detach or dismantle items from existing construction in a manner to prevent damage. Clean and prepare for reuse and reinstall where indicated.

D. Existing to Remain: Designation for existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

PART 3 EXECUTION

2.01 DEMOLITION

A. Remove the entire building as shon on drawings.

B. Remove paving and curbs required to accomplish new work.

C. Remove all other paving and curbs within site boundaries.

D. Within site boundaries, remove foundation walls and footings to minimum 4 feet below finished grade.

E. Remove concrete slabs on grade within site boundaries.

F. Remove manholes and manhole covers, curb inlets and catch basins.

G. Remove fences and gates.

H. Remove other items indicated, for salvage and relocation.

I. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Comply with applicable requirements of NFPA 241.
   3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   4. Provide, erect, and maintain temporary barriers and security devices.

5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
7. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
8. Conduct operations to minimize obstruction of public and private entrances and exits. Do not obstruct required exits at any time. Protect persons using entrances and exits from removal operations.
9. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Do not begin removal until built elements to be salvaged or relocated have been removed.

D. Protect existing structures and other elements to remain in place and not removed.
1. Provide bracing and shoring.
2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

E. Minimize production of dust due to demolition operations. Do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

F. Hazardous Materials:
1. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCBs, and mercury.

G. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

2.03 EXISTING UTILITIES

A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

2.04 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Existing construction and utilities indicated on drawings are based on casual field observation and existing record documents only.
1. Verify construction and utility arrangements are as indicated.
2. Report discrepancies to Architect before disturbing existing installation.
3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from areas that remain occupied.
1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.

C. Remove existing work as indicated and required to accomplish new work.
   1. Remove items indicated on drawings.

D. Services including, but not limited to, HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications: Remove existing systems and equipment as indicated.
   1. Maintain existing active systems to remain in operation, and maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   3. Verify that abandoned services serve only abandoned facilities before removal.
   4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings. Remove back to source of supply where possible, otherwise cap stub and tag with identification.

E. Protect existing work to remain.
   1. Prevent movement of structure. Provide shoring and bracing as required.
   2. Perform cutting to accomplish removal work neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch to match new work.

2.05 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation and integral vapor retarder at cavity wall construction and exterior wall behind masonry wall finish.

B. Batt insulation in exterior wall construction.

C. Batt insulation for filling perimeter window and door shim spaces.

1.02 RELATED REQUIREMENTS

A. Section 07 2700 - Air Barriers: Separate air barrier materials.

1.03 DEFINITIONS

A. Mineral Fiber Material Composition: Insulation referred to as mineral fiber block, board, and blanket insulation is composed of fibers from mineral based substances such as rock, slag, or glass and processed from the molten state into fibrous form.
   1. Based on type of insulation substance, the material will be referred to as a mineral fiber when having a rock or slag base, and glass fiber with a glass or silica sand base, also considered a mineral.
   2. Insulation blankets are flexible units consisting of felted, bonded, or unbonded fibers formed into rolls or flat cut pieces referred to as batts; rolls are simply longer versions of batts.
   3. For additional information about mineral fiber and the various classification types, refer to the following reference standards; ASTM C553, ASTM C612, ASTM C665, and ASTM C726.

1.04 REFERENCE STANDARDS

A. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2024.

B. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2023.

C. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2025.

D. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2024.

E. ASTM C726 - Standard Specification for Mineral Wool Roof Insulation Board; 2024.

F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.

G. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C; 2026.

1.05 SUBMITTALS

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

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Insulation Over Metal Stud Framed Walls, Continuous: Extruded polystyrene (XPS) board.

B. Insulation in Metal Framed Walls: Batt insulation with no vapor retarder.

2.02 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene (XPS) Board Insulation: Comply with ASTM C578 with either natural skin or cut cell surfaces.
   1. Type and Compressive Resistance: Type IV, 25 psi (173 kPa), minimum.
   2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
   3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
   4. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88), minimum, per 1 inch thickness at 75 degrees F mean temperature.
   5. Board Edges: Square.

2.03 MINERAL FIBER BLANKET INSULATION MATERIALS

A. Flexible Glass Fiber Blanket Thermal Insulation: Preformed insulation, complying with ASTM C665; friction fit.
   1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E84.
   2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
   3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
   4. Formaldehyde Content: Zero.
   5. Thermal Resistance: R-value of 19.
   6. Facing: Unfaced.

2.04 ACCESSORIES

A. Nails or Staples: Steel wire; electroplated or galvanized; type and size to suit application.

B. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

3.02 BOARD INSTALLATION AT EXTERIOR WALLS

A. Install boards horizontally on walls.
   1. Place boards to maximize adhesive contact.
   2. Install in running bond pattern.
   3. Butt edges and ends tightly to adjacent boards and protrusions.

B. Extend boards over expansion joints, unbonded to wall on one side of joint.

C. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.03 BOARD INSTALLATION AT CAVITY WALLS

A. Secure impale fasteners to substrate at following frequency:
   1. Six (6) per insulation board.

B. Install boards to fit snugly between wall ties.

C. Install boards horizontally on walls.
   1. Place boards to maximize adhesive contact.
   2. Install in running bond pattern.
   3. Butt edges and ends tightly to adjacent boards and protrusions.
   4. Place impale fastener locking discs.

D. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.04 BATT INSTALLATION

A. Install insulation and vapor retarder in accordance with manufacturer's instructions.

B. Install in exterior wall spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over face of member

F. Coordinate work of this section with construction of air barrier seal, see Section 07 2700.

3.05 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 2700
AIR BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Air barriers.

1.02 DEFINITIONS

A. Air Barrier: Airtight barrier made of material that is virtually air impermeable but water vapor permeable, both to amount as specified, with sealed seams and sealed joints to adjacent surfaces.

1.03 REFERENCE STANDARDS

A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2016 (Reapproved 2021).

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.

C. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.

D. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials; 2021a.

E. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components; 2025.

1.04 SUBMITTALS

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

B. Product Data: Provide data on material characteristics and performance criteria.

C. Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.

PART 2 PRODUCTS

2.01 AIR BARRIER MATERIALS (AIR IMPERMEABLE AND WATER VAPOR PERMEABLE)

A. Air Barrier Sheet, Mechanically Fastened:
   1. Air Permeance: 0.004 cfm/sq ft, maximum, when tested in accordance with ASTM E2178.
   2. Water Vapor Permeance: 10 perms, minimum, when tested in accordance with ASTM E96/E96M using Procedure A - Desiccant Method, at 73.4 degrees F.
   3. Ultraviolet (UV) and Weathering Resistance: Approved by manufacturer for up to 90 days of weather exposure.
   4. Surface Burning Characteristics: Flame spread index of 25 or less, and smoke developed index of 50 or less, Class A, when tested in accordance with ASTM E84.
   5. Comply with NFPA 285 requirements for wall assembly.
   6. Seam and Perimeter Tape: Polyethylene self-adhering type, mesh reinforced, 2-1/2 inches wide, compatible with sheet material; unless otherwise indicated.
   7. Products:
      a. DuPont de Nemours, Inc; Tyvek Construction Wrap with Tyvek Fluid Applied Flashing - Brush Formulation, Tyvek Fluid Applied Flashing and Joint Compound, FlexWrap, and Tyvek Wrap Caps: building.dupont.com/#sle.
      b. Henry Company; WeatherSmart: www.henry.com/#sle.
      c. Henry Company; WeatherSmart Commercial: www.henry.com/#sle.

2.02 ACCESSORIES

A. Sealants, Tapes, and Accessories for Sealing Air Barrier and Adjacent Substrates: As indicated or in compliance with air barrier manufacturer's installation instructions.

B. Sealant for Cracks and Joints In Substrates: Resilient elastomeric joint sealant compatible with substrate and air barrier materials.
   1. Application: Apply at 30 to 40 mil, 0.030 to 0.040 inch, nominal thickness.
   2. Color: Green.
   3. Elongation: 1,300 percent, measured in accordance with ASTM D412.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready for work of this section.

B. Where existing conditions are responsibility of another installer, notify Architect of unsatisfactory conditions.

C. Do not proceed with this work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install materials in accordance with manufacturer's installation instructions.

B. Air Barriers: Install continuous airtight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

C. Apply sealants and adhesives within recommended temperature range in accordance with manufacturer's installation instructions.

D. Mechanically Fastened Sheets - On Exterior:
   1. Install sheets shingle fashion to shed water, with seams generally horizontal.
   2. Overlap seams as recommended by manufacturer, 6 inches, minimum.
   3. Overlap at outside and inside corners as recommended by manufacturer, 12 inches, minimum.
   4. Attach to framed construction with fasteners extending through sheathing into framing, and space fasteners at 12 to 18 inches on center along each framing member supporting sheathing.
   5. For applications indicated to be airtight, seal seams, laps, penetrations, tears, and cuts with self-adhesive tape; use only large-headed, gasketed fasteners as recommended by manufacturer.
   6. Where stud framing rests on concrete or masonry substrate, extend lower edge of air barrier sheet at least 4 inches below bottom of framing and seal to substrate with sealant or approved mounting tape.
   7. Install air barrier underneath jamb flashings.
   8. At framed openings with frames having nailing flanges, extend sheet into opening and over flanges; at head of opening, seal sheet over flange and flashing.

E. Openings and Penetrations in Exterior Air Barriers:
   1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto air barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
   2. At openings with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
   3. At openings with nonflanged frames, seal air barrier to each side of framing at opening using flashing at least 9 inches wide, and covering entire depth of framing.
   4. At head of openings, install flashing under air barrier extending at least 2 inches beyond face of jambs; seal air barrier to flashing.
   5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
   6. Service and Other Penetrations: Form flashing around penetrating item and seal to air barrier surface.

3.03 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 07 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings and counterflashings.

B. Sealants for joints within sheet metal fabrications.

1.02 RELATED REQUIREMENTS

A. Section 04 2000 - Unit Masonry: Metal flashings embedded in masonry.

B. Section 06 1053 - Miscellaneous rough carpentry: Wood nailers ofr sheet metal work.

1.03 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2020, with Errata (2022).

B. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement; 2025.

E. CDA A4050 - Copper in Architecture - Handbook; Current Edition.

F. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 SUBMITTALS

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

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Pre-Finished Aluminum: ASTM B209/B209M; 18 gauge, 0.040 inch thick; plain finish shop pre-coated with silicone modified polyester coating.
   1. Polyvinylidene Fluoride (PVDF) Coating: Superior performing organic powder coating, AAMA 2605; pretreated metal with two-coat system including primer and color coat with at least 70 percent PVDF coating.
   2. Color: As selected by Architect from manufacturer's standard colors.

B. Stainless Steel: ASTM A666/A666M, Type 304 alloy, soft temper, 28 gauge, 0.0156 inch thick; smooth No. 4 - Brushed finish.

2.02 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18-inch long legs; seam for rigidity, seal with sealant.

F. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

2.03 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Primer: Zinc chromate type.

C. Protective Backing Paint: Zinc molybdate alkyd.

D. Concealed Sealants: Non-curing butyl sealant.

E. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

F. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.

G. Reglets: Surface-mounted type, galvanized steel; face and ends covered with plastic tape.

PART 3 EXECUTION

3.01 INSTALLATION

A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

B. Apply plastic cement compound between metal flashings and felt flashings.

C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

END OF SECTION

SECTION 07 9200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 072400 - Exterior Insulation and Finish Systems: Sealants between EIFS and adjacent construction and penetrations through EIFS.

B. Section 07 8400 - Firestopping: Firestopping sealants.

C. Section 09 2116 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

D. Section 09 3000 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.

1.03 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2017.

B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2024.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.

E. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2022.

F. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.

1.04 SUBMITTALS

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

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   4. Substrates the product should not be used on.

C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
      b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
      c. Other joints indicated below.
   2. Do not seal the following types of joints.
      a. Intentional weepholes in masonry.

b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
d. Joints where installation of sealant is specified in another section.
e. Joints between suspended panel ceilings/grid and walls.

B. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
2. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
3. Type ___ - In Sound-Rated Assemblies: Acrylic emulsion latex sealant.

C. Interior Wet Areas: restrooms; fixtures in wet areas include plumbing fixtures, countertops, cabinets, and other similar items.

D. Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".

2.02 NONSAG JOINT SEALANTS

A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 50 percent, minimum.
2. Non-Staining to Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
4. Color: Match adjacent finished surfaces.

B. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: White.

C. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 50 percent, minimum.
2. Color: Match adjacent finished surfaces.

D. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: Standard colors matching finished surfaces, Type OP (opaque).
2. Grade: ASTM C834; Grade 0 Degrees F (Minus 18 Degrees C).

2.03 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
2. Open Cell: 40 to 50 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
   1. Width/depth ratio of 2:1.
   2. Neck dimension no greater than 1/3 of the joint width.
   3. Surface bond area on each side not less than 75 percent of joint width.

E. Install bond breaker backing tape where backer rod cannot be used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

B. Fire-rated hollow metal doors and frames.

C. Thermally insulated hollow metal doors with frames.

1.02 RELATED REQUIREMENTS

A. Section 08 7100 - Door Hardware.

B. Section 08 8000 - Glazing: Glass for doors and borrowed lites.

C. Section 09 9113 - Exterior Painting: Field painting.

D. Section 09 9123 - Interior Painting: Field painting.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2022.

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2025.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2021a.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2018a.

H. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.

I. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

J. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.

K. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

L. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.

M. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2024.

N. NAAMM HMMA 840 - Guide Specifications for Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2024.

O. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2014.

P. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2025, with Amendment (2024).

Q. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2023.

1.04 SUBMITTALS

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

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com/#sle.
2. Republic Doors, an Allegion brand: www.republicdoor.com/#sle.
3. Steelcraft, an Allegion brand: www.allegion.com/#sle.
4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
2. Accessibility: Comply with ICC A117.1 and ADA Standards.
3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
4. Door Edge Profile: Manufacturers standard for application indicated.
5. Typical Door Face Sheets: Flush.
6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturer's standard.
7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
8. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
    a. Based on NAAMM HMMA Custom Guidelines: Provide at least A25/ZF75 (galvannealed) for interior applications, and at least A60/ZF180 (galvannealed) or G60/Z180 (galvanized) for corrosive locations.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

A. Door Finish: Factory primed and field finished.

B. Exterior Doors: Thermally insulated.
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    a. Level 2 - Heavy-duty.
    b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.

c. Model 1 - Full Flush.
d. Door Face Metal Thickness: 18 gauge, 0.042 inch, minimum.
e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.

2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
3. Door Thickness: 1-3/4 inches, nominal.
4. Weatherstripping: Refer to Section 08 7100.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Frame Finish: Factory primed and field finished.

C. Exterior Door Frames: Full profile/continuously welded type.
1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
2. Frame Metal Thickness: 16 gauge, 0.053 inch, minimum.
3. Weatherstripping: Separate, see Section 08 7100.

D. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
1. Frame Metal Thickness: 18 gauge, 0.042 inch, minimum.

E. Door Frames, Fire-Rated: Full profile/continuously welded type.
1. Fire Rating: Same as door, labeled.
2. Frame Metal Thickness: 18 gauge, 0.042 inch, minimum.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15 mil, 0.015 inch dry film thickness (DFT) per coat; provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
1. Fire-Rated Frames: Comply with fire rating requirements indicated.

2.06 ACCESSORIES

A. Glazing: As specified in Section 08 8000, factory installed.

B. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.

C. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

D. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Install door hardware as specified in Section 08 7100.

F. Comply with glazing installation requirements of Section 08 8000.

3.03 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.04 ADJUSTING

A. Adjust for smooth and balanced door movement.

B. Adjust sound control doors so that seals are fully engaged when door is closed.

END OF SECTION

SECTION 09 2116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Metal stud wall framing.

C. Metal channel ceiling framing.

D. Gypsum sheathing.

E. Gypsum wallboard.

F. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Section 05 4000 - Cold-Formed Metal Framing: Structural steel stud framing.

B. Section 07 2100 - Thermal Insulation: Acoustic insulation.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

C. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2025.

D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).

E. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2024.

F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.

G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2025.

H. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.

I. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2019.

J. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2024.

K. ASTM C1280 - Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing; 2025.

L. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.

M. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels; 2019 (Reapproved 2024).

N. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.

O. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).

P. GA-216 - Application and Finishing of Gypsum Panel Products; 2024.

1.04 SUBMITTALS

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

B. Shop Drawings: Indicate special details associated with fireproofing and acoustic seals.

C. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

D. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

2.02 METAL FRAMING MATERIALS

A. Non-structural Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.
   1. Studs: C-shaped with knurled or embossed faces.
   2. Runners: U shaped, sized to match studs.
   3. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch.
   4. Resilient Furring Channels: Single or double leg configuration; 1/2 inch channel depth.

B. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.

C. Non-structural Framing Accessories:
   1. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
   2. Partial Height Wall Framing Support: Provides stud reinforcement and anchored connection to floor.
      a. Materials: ASTM A36/A36M formed sheet steel support member with factory-welded ASTM A1003/A1003M steel plate base.
      b. Height: 35-3/4 inches.
   3. Framing Connectors: ASTM A653/A653M G90 galvanized steel clips; secures cold rolled channel to wall studs for lateral bracing.

D. Grid Suspension Systems: Steel grid system of main tees and support bars connected to structure using hanging wire.

2.03 BOARD MATERIALS

A. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Glass mat faced gypsum panels, as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
   3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   4. Thickness:
      a. Vertical Surfaces: 5/8 inch.
      b. Ceilings: 5/8 inch.
      c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.

B. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
   1. Application: Exterior sheathing, unless otherwise indicated.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   3. Fungal Resistance: No fungal growth when tested in accordance with ASTM G21.
   4. Glass Mat Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
   5. Core Type: Regular.
   6. Regular Board Thickness: 1/2 inch.
   7. Edges: Square.

2.04 GYPSUM BOARD ACCESSORIES

A. Acoustic Insulation: See Section 07 2100.

B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.

C. Water-Resistive Barrier: See Section 07 2500.

D. Finishing Accessories: ASTM C1047, extruded aluminum alloy (6063 T5) or galvanized steel sheet ASTM A924/A924M G90, unless noted otherwise.
   1. Types: As detailed or required for finished appearance.
   2. Special Shapes: In addition to conventional corner bead and control joints, provide U-bead at exposed panel edges.

E. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
   1. Paper Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
   2. Joint Compound: Drying type, vinyl-based, ready-mixed.

F. Finishing Compound: Surface coat and primer, takes the place of skim coating.

G. High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

H. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
   1. Level ceiling system to a tolerance of 1/1200.
   2. Laterally brace entire suspension system.
   3. Install bracing as required at exterior locations to resist wind uplift.

C. Studs: Space studs at 16 inches on center.
   1. Extend partition framing to structure where indicated and to ceiling in other locations.
   2. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous bridging.

D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

E. Standard Wall Furring: Install at concrete walls scheduled to receive gypsum board, not more than 4 inches from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches on center.
   1. Orientation: Horizontal.
   2. Spacing: As indicated.

F. Acoustic Furring: Install resilient channels at maximum 24 inches on center. Locate joints over framing members.

G. Blocking: Install wood blocking for support of:
   1. Framed openings.
   2. Wall-mounted cabinets.
   3. Plumbing fixtures.

4. Toilet partitions.
5. Toilet accessories.
6. Wall-mounted door hardware.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
   1. Place one bead continuously on substrate before installation of perimeter framing members.
   2. Place continuous bead at perimeter of each layer of gypsum board.
   3. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.04 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
   1. Exception: Tapered edges to receive joint treatment at right angles to framing.

C. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.

D. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
   1. Paper-Faced Sheathing: Immediately after installation, protect from weather by application of water-resistive barrier.

E. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of nonrated double-layer assemblies, which may be installed by means of adhesive lamination.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as follows:
   1. Not more than 30 feet apart on walls and ceilings over 50 feet long.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.06 JOINT TREATMENT

A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, embed and finish with setting type joint compound.

B. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.

C. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
   2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   3. Level 3: Walls to receive textured wall finish.
   4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
   5. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.

D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch.

E. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

3.07 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09 5100
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.02 RELATED REQUIREMENTS

A. Section 08 3100 - Access Doors and Panels: Access panels.

B. Section 23 3713 - Diffusers, Registers, Grilles and Louvers: Air diffusion devices in ceiling.

C. Section 26 0060 - LED Interior Lighting: Light fixtures in ceiling system.

D. Section 27 0140 - Fire Alarm System: Fire alarm components in ceiling system.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

C. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023, with Editorial Revision (2024).

D. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.

E. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019 (Reapproved 2025).

F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026.

G. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2026.

H. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2024a.

I. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2023.

J. UL (GGG) - GREENGUARD Gold Certified Products; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS

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

B. Shop Drawings: Indicate grid layout and related dimensioning.

C. Product Data: Provide data on suspension system components and acoustical units.

D. Samples: Submit two samples 6x6 inch in size illustrating material and finish of acoustical units.

E. Samples: Submit two samples each, 6" inches long, of suspension system main runner, cross runner, and perimeter molding.

F. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.06 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.07 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS - SEE MATERIAL DESIGN BASIS ON DRAWINGS

A. Acoustic units, suspension system(s), and accessories to be provided from same manufacturer.

2.02 ACOUSTICAL UNITS - SEE MATERIAL DESIGN BASIS ON DRAWINGS

2.03 SUSPENSION SYSTEM(S) - SEE MATERIAL DESIGN BASIS ON DRAWINGS

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

2.04 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Hanger Wire: 12 gauge, 0.08 inch galvanized steel wire.

C. Perimeter Moldings: Same metal and finish as grid.
   1. Size: As required for installation conditions and specified Seismic Design Category.
   2. Angle Molding: L-shaped, for mounting at same elevation as face of grid.

D. Metal Edge Trim for "Cloud" Suspension Systems: Steel or extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
   1. Trim Height: 4 inch.
   2. Finish: Baked enamel.
   3. Color: As indicated on material design basis.
   4. Products:
      a. USG Corporation; Compasso Suspension Trim: www.usg.com/ceilings/#sle.
      b. Substitutions: See Section 01 6000 - Product Requirements.

E. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 PREPARATION

A. Install after major above-ceiling work is complete.

B. Coordinate the location of hangers with other work.

C. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

D. Acclimate wood ceiling materials by removing from packaging in installation area a minimum of 72 hours prior to installation.

3.03 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M and manufacturer's instructions and as supplemented in this section.

B. Install hangers and inserts coordinated with overhead work. Provide additional hangers and supports as required.

C. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

D. Locate system on room axis according to reflected plan.

E. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Miter corners.

F. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

G. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

I. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

J. Do not eccentrically load system or induce rotation of runners.

3.04 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

E. Cutting Acoustical Units:
   1. Make field cut edges of same profile as factory edges.

F. Lay acoustical insulation for a distance of 48 inches either side of acoustical partitions as indicated.

G. Install hold-down clips on panels within 20 ft of an exterior door.

3.05 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

3.06 CLEANING

A. Clean and touch up minor finish damage. Remove and replace components that cannot be successfully cleaned and repaired.

END OF SECTION

SECTION 09 9113
EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
   1. Exposed surfaces of steel lintels and ledge angles.

D. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Floors, unless specifically indicated.
   6. Exterior insulation and finish system (EIFS).
   7. Glass.
   8. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Section 09 9123 - Interior Painting.

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.

C. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

D. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.04 SUBMITTALS

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

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

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the paint product manufacturer's temperature ranges.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless required to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
   4. Supply each paint material in quantity required to complete entire project's work from a single production run.
   5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
      b. Architectural coatings VOC limits of the State in which the Project is located.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

D. Colors: As indicated in Color Schedule.

2.03 PAINT SYSTEMS - EXTERIOR

A. Ferrous Metal, Primed, Exterior acrylic polyurethane, 2-coat:
   1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
   2. Semi-gloss: Two coats of Sherwin William Acrolon 218 HS Parts A & B.
   3. Items to be painted: Exterior doors and frames, primed lintels

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been properly prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

D. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
   3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

3.03 APPLICATION

A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

C. Apply each coat to uniform appearance.

D. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply additional coats until complete hide is achieved.

E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

END OF SECTION

SECTION 09 9123
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
   1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
   2. Prime surfaces to receive wall coverings.
   3. Mechanical and Electrical:
      a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.

D. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
   5. Floors, unless specifically indicated.
   6. Brick, architectural concrete, cast stone, integrally colored plaster, and stucco, unless specifically indicated.
   7. Glass.
   8. Acoustical materials, unless specifically indicated.
   9. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Section 05 5000 - Metal Fabrications: Shop-primed items.

B. Section 09 9113 - Exterior Painting.

1.03 REFERENCE STANDARDS

A. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2023.

B. ASTM D4259 - Standard Practice for Preparation of Concrete by Abrasion Prior to Coating Application; 2024.

C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials; 2020 (Reapproved 2025).

D. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.

E. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

F. SSPC-SP 2 - Hand Tool Cleaning; 2024.

G. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

H. SSPC-SP 13 - Surface Preparation of Concrete; 2018.

1.04 SUBMITTALS

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

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

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.

D. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
   3. Label each container with color in addition to the manufacturer's label.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum ten years experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

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

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes:
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Supply each paint material in quantity required to complete entire project's work from a single production run.
   3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

2.02 PAINT SYSTEMS - INTERIOR - SEE MATERIAL DESIGN BASIS ON DRAWINGS

A. Paint I-OP-MD-DT - Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
   1. Medium duty applications include doors, door frames, handrails, guardrails, and balustrades, unless otherwise noted.
   2. Two top coats and one coat primer.

B. Paint I-OP-MD-WC - Medium Duty Vertical and Overhead: Including gypsum board, plaster, concrete, concrete masonry units, uncoated steel, shop primed steel, galvanized steel, and aluminum.
   1. Two top coats and one coat primer.

2.03 PRIMERS

A. Provide primers as recommended by manufacturer of top coats.

2.04 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
   1. Gypsum Wallboard: 12 percent.
   2. Plaster and Stucco: 12 percent.
   3. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
   4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Concrete:
   1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
   2. Clean concrete according to ASTM D4258. Allow to dry.

F. Masonry:
   1. Remove efflorescence and chalk. Do not coat surfaces if moisture content, alkalinity of surfaces, or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
   2. Prepare surface as recommended by top coat manufacturer.

G. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

H. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

I. Aluminum: Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

J. Galvanized Surfaces:
   1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

K. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
   3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

L. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

M. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.

N. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.

G. Sand wood and metal surfaces lightly between coats to achieve required finish.

H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 10 2113.19
PLASTIC TOILET COMPARTMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Solid plastic toilet compartments.

B. Urinal screens.

1.02 REFERENCE STANDARDS

A. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2024.

1.03 SUBMITTALS

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

B. Product Data: Provide data on panel construction, hardware, and accessories.

C. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall supports, door swings.

D. Samples: Submit two samples of partition panels, ____by____ inch in size illustrating panel finish, color, and sheen.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Solid Plastic Toilet Compartments:
   1. AJW Architectural Products: www.ajw.com/#sle.
   2. ASI Accurate Partitions: www.asi-accuratepartitions.com/#sle.
   3. ASI Global Partitions: www.asi-globalpartitions.com/#sle.
   4. Partition Systems International of South Carolina: www.psisc.com/#sle.
   5. Scranton Products: www.scrantonproducts.com/#sle.

2.02 PLASTIC TOILET COMPARTMENTS

A. Solid Plastic Toilet Compartments: Factory fabricated doors, pilasters, and divider panels made of solid molded high density polyethylene (HDPE), tested in accordance with NFPA 286; floor-mounted unbraced.
   1. Doors:
      a. Thickness: 1 inch.
      b. Width: 24 inch.
      c. Width for Handicapped Use: 36 inch, out-swinging.
      d. Height: 55 inch.
   2. Panels:
      a. Thickness: 1 inch.
      b. Height: 55 inch.
   3. Pilasters:
      a. Thickness: 1 inch.
      b. Width: As required to fit space; minimum 3 inch.
   4. Screens: Without doors; to match compartments; mounted to wall with continuous panel brackets and braced to adjacent partition with head rail.

2.03 ACCESSORIES

A. Pilaster Shoes: Stainless steel, satin finish, 3 inches high; concealing floor fastenings.
   1. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster.

B. Head Rails: Extruded aluminum, anti-grip profile.
   1. Size: Manufacturer's standard size.

C. Wall and Pilaster Brackets: Stainless steel; continuous type.

D. Attachments, Screws, and Bolts: Stainless steel , tamper proof type.
   1. For attaching panels and pilasters to brackets: Through-bolts and nuts ; tamper proof.

E. Hinges: Stainless steel, manufacturer's standard finish.
   1. Continuous-type hinge, self closing.

F. Door Hardware: Stainless steel, manufacturer's standard finish.
   1. Door Latch: Slide type with exterior emergency access feature.
   2. Door Strike and Keeper with Rubber Bumper: Mount on pilaster in alignment with door latch.
   3. Provide door pull for outswinging doors.

G. Coat Hook: One per compartment, mounted on door.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.

B. Maintain 3/8 inch to 1/2 inch space between wall and panels and between wall and end pilasters.

C. Attach panel brackets securely to walls using anchor devices.

D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.

3.02 TOLERANCES

A. Maximum Variation From True Position: 1/4 inch.

3.03 ADJUSTING

A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.

B. Adjust hinges to position doors in partial opening position when unlatched. Return out-swinging doors to closed position.

C. Adjust adjacent components for consistency of line or plane.

END OF SECTION

SECTION 22 0000
GENERAL PLUMBING PROVISIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.02 SUMMARY

A. This Section includes general provisions covering the contract documents for Plumbing Systems.

1.03 DEFINITIONS

A. Provide shall mean "Furnish, install and connect."

B. Piping shall mean "pipe installed with all specified fittings, valves and accessories, and forming a complete system."

1.04 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract.

B. Model numbers listed on the Mechanical Contract Documents shall not be construed to indicate electrical characteristics.

C. Review of Submittals does not relieve the Contractor of any of the requirements of the Contract Documents. Failure by the Engineer to document errors and omissions in the Contractor's submittals during the Engineer's submittal review does not constitute a waiver of any of the requirements of the original sealed Contract Documents.

1.05 CONTRACTOR QUALIFICATIONS

A. Plumbing Subcontractor shall have a Class II Unlimited License and shall have demonstrated proficiency in the installation of plumbing systems by the successful installation of systems similar to those included in the Construction Documents for this project. Such systems shall have been installed in commercial or institutional buildings having a minimum of 150 plumbing fixtures (in a single building). The Subcontractor shall have been in business as described above for a minimum period of five years.

B. A master or journeyman plumber shall be present at the site during the installation of all plumbing related work. The master or journeyman plumber shall be certified in the state in which the construction is being performed and shall have his license present at site or on file during construction.

1.06 PRIOR APPROVALS

A. Manufacturers References: When reference is made in the Contract Documents to trade names or specific manufacturers and/or models, such reference, unless noted otherwise, is made to designate and identify the quality of materials or equipment to be furnished and is not intended to restrict competitive bidding. If it is desired to use materials or equipment different from those indicated on the Contract Documents, written request for approval must reach the hands of the Primary Design Professional at least TEN DAYS prior to the date set for the opening of bids. A copy of the request should also be sent directly to the Engineer. Requests for prior approval of a proposed substitute shall be accompanied by complete technical data supporting the request.

1.07 LAYOUT AND COORDINATION

A. Layout Basis:

1. The equipment listed on the Drawings and in the Specifications has been used for the physical arrangement of the mechanical systems. When equipment listed as acceptable, equal or equipment which has received "prior approval" is used, it shall be the Contractor's responsibility to provide structural, ductwork, electrical, service clearances, or other changes required to accommodate the substituted equipment. Changes shall be made at no additional cost to the Owner. Submit a list of required changes along with all prior approval requests and shop drawing submittals.
2. The Contract Drawings are intended to show the general arrangement of all mechanical work. They do not show in detail all offsets, fittings and transitions. Examine Drawings, investigate site conditions to be encountered and arrange work accordingly. Furnish all offsets and transitions required.

3. Drawings do not indicate in detail exact configuration of connections for fixtures, equipment and accessories. Final connection shall be as shown on approved Manufacturer's Submittal Drawings. Where Manufacturer's Submittal Drawings conflict with the Contract Documents, confer with the Design Professional for resolution.
4. Measurement of Drawings by scale shall not be used as dimensions for fabrication. Measurements for locating fixtures, equipment, ductwork, piping and other mechanical items shall be made on the site and shall be based on actual job conditions.
5. Check space limitations and verify electrical requirements before ordering any mechanical equipment or materials. Place large equipment inside the building prior to the erection of exterior walls where equipment cannot enter finished building openings.

B. Coordination: Mechanical work shall be coordinated with that of other trades to avoid conflict. The Contractor shall study all plans and specifications for this project and shall notify the Design Professional of any conflict between work under Division 22 and work under other divisions of the Project. Particular attention shall be given to interference between piping, electrical installations, structural systems, building openings and ductwork.

C. Installation Instructions: Manufacturer's installation instructions for all equipment furnished under Division 22 shall be furnished by the Contractor. Instructions shall be maintained on the jobsite until the project is complete and then turned over to the Owner.

1.08 PERMITS

A. Obtain all necessary Permits and Inspections required for the installation of this work and pay all charges incident thereto. Deliver to the Design Professional all certificates of inspection issued by authorities having jurisdiction.

B. All charges for work under Division 22, including charges for meter installation and excess service by the Gas Company or any other utilities shall be paid by the Contractor.

1.09 SAFETY

A. OSHA Requirements applicable to the project shall be complied with at all times.

B. Manufacturer's Safety Instructions shall be followed in all instances.

C. Asbestos Containing Materials (ACM) shall not be used on this project.

D. Refrigerants containing CFC’s or HCFC’s shall not be used on this project, nor shall any equipment using such refrigerants be incorporated into this project.

E. Electrical Equipment Clearances: Piping, equipment and other mechanical installations shall not be located within 42" of the front or 36" of the side of any electrical switchboards, panelboards, power panels, motor control centers, electrical transformers or similar electrical equipment. Piping and ductwork shall not pass through or above electrical equipment rooms except as required to serve those rooms.

1.10 PROTECTION OF PLUMBING SYSTEMS DURING CONSTRUCTION

A. Material storage

1. All materials and equipment stored on the jobsite shall be elevated above the ground and stored under suitable weather cover. Materials and equipment shall not be situated in areas subjected to localized flooding.
2. Manufacturer’s original shipping packaging and protective coverings shall be left in place until the equipment is prepared for installation.

B. Roof protection: All penetrations through roofs, including roof vents and roof drainage system elements shall be properly protected during construction to prevent water intrusion into the building. Protective measures could include temporary covers and plugs, as well as other appropriate temporary elements.

C. Protection of equipment and piping

1. Maintain temporary closures on the ends of all equipment and pipes as the installation work progresses. Temporary closures include plastic sheeting, tape and appropriate caps and covers.

2. Where debris enters piping during installation, steps shall be taken to clean the interior of the pipe prior to placing in service.
3. Where debris enters equipment during installation the duct interior shall be cleaned prior to placing in service.

1.11 CODES AND STANDARDS

A. Mechanical installations shall conform to the current edition (recognized by the State) of the following, in addition to any previously mentioned Codes and Standards.
1. The International Building Code.
2. The International Mechanical Code.
3. The International Plumbing Code.
4. The International Fire Protection Code.
5. NFPA Standard 70, National Electric Code.
6. NFPA Standard 101, Code for Safety to Life for Fire in Buildings and Structures.

1.12 ASBESTOS MATERIALS

A. Contractor is advised there may be ASBESTOS PRODUCTS in building(s) which will affect work under this Project. Particular reference is made to piping, equipment and other items that may be modified or removed. It shall be the sole responsibility of Contractor to check for and ascertain presence of asbestos materials where such presence affects work under this Project. Where Contractor ascertains presence of asbestos materials, he shall notify Owner and Engineer in writing of presence of asbestos BEFORE beginning any work. Removal of asbestos products shall be the responsibility of Owner AFTER he has been notified by Contractor of its presence.

B. Engineer assumes no responsibility of investigating for presence of ASBESTOS PRODUCTS or for verifying presence of asbestos materials, nor does Engineer assume any responsibility for specifying, advising on, or supervising removal of any asbestos products. Contractor and Owner shall hold harmless Engineer in any matters involving presence of, or removal of, asbestos products.

1.13 INTERRUPTION OF EXISTING SERVICES

A. Exercise care so as not to cut any existing utilities or services. Where an existing utility line or service line is cut it shall be repaired to "like-new" condition. Interruption of service shall not be made without prior written permission of the Owner.

B. Plumbing system must remain in service during construction. Arrange with the Owner well in advance of shutdowns required for tie-ins. Shutdowns shall be made after normal occupancy hours if so directed by the Owner. No additional monies will be paid for after-hours shutdowns.

1.14 OPERATION AND MAINTENANCE (O&M) MANUALS

A. Provide an electronic (PDF format) document containing all of the operation and maintenance manuals for mechanical equipment utilized on the project as specified in this and other sections of the specifications.

B. The O&M document shall include a cover page indicating the project name, project number, lead design professional, mechanical design professional, and project owner.

C. The document shall include a table of contents with electronic tabs that link to each of the equipment sections in the document.

D. Project-specific model and serial number information shall be shown on the lead page of each equipment section in the manual.

E. The manual shall include documentation confirming registration of extended warranties with the equipment manufacturer. This documentation shall include equipment serial numbers and dates of warranty start.

F. The document shall be submitted to the owner and the design team at least 15 days prior to the scheduled systems/equipment maintenance training.

1.15 OPERATION AND MAINTENANCE OWNER TRAINING

A. Training of the owner’s designated maintenance personnel shall be scheduled with the owner in advance.

B. The content of the training session or sessions shall cover essential operating and maintenance characteristics of all mechanical equipment installed under the project.
C. Upon completion of the training, the owner and design team shall be presented with a document indicating the date and location of the training, the general description of the training, and a list of the Owner's staff that attended the training.

PART 2 - PRODUCTS Not required for this section.

PART 3 - EXECUTION Not required for this section.

END OF SECTION 22 0000

SECTION 22 0500
COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract apply to this Section.

1.02 SUMMARY

A. This Section includes the following basic mechanical materials and methods to complement other Division 22 sections.
   1. Piping materials and installation instructions common to most piping systems.
   2. Field-fabricated metal and wood equipment supports.
   3. Installation requirements common to equipment specification Sections.
   4. Mechanical demolition.
   5. Cutting and patching.
   6. Touchup painting and finishing.

B. Pipe and pipe fitting materials are specified in piping system Sections.

1.03 DEFINITIONS

A. Pipe, pipe fittings, and piping include tube, tube fittings, and tubing.

B. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below the roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.

C. Exposed Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

D. Exposed Exterior Installations: Exposed to view outdoors, or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

1.04 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract.

B. Shop drawings detailing fabrication and installation for metal supports and anchorage for mechanical materials and equipment.

C. Coordination drawings for access panel and door locations.

D. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

1.05 QUALITY ASSURANCE

A. Qualify welding processes and operators for structural steel according to AWS D1.1 "Structural Welding Code--Steel."

B. Qualify welding processes and operators for piping according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."
   1. Comply with provisions of ASME B31 Series "Code for Pressure Piping."
   2. Certify that each welder has passed AWS qualification tests for the welding processes involved and that certification is current.

C. ASME A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

D. Equipment Selection: Equipment of greater or larger power, dimensions, capacities, and ratings may be furnished provided such proposed equipment is approved in writing and connecting mechanical and electrical services, circuit breakers, conduit, motors, bases, and equipment spaces are increased. No additional costs will be approved for these increases, if larger equipment is approved. If minimum energy ratings or efficiencies of the equipment are specified, the equipment must meet the design requirements and commissioning requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and prevent entrance of dirt, debris, and moisture.

B. Protect stored pipes and tubes from moisture and dirt. Elevate above grade. When stored inside, do not exceed structural capacity of the floor.
C. Protect flanges, fittings, and piping specialties from moisture and dirt.

1.07 SEQUENCING AND SCHEDULING

A. Coordinate mechanical equipment installation with other building components.
B. Arrange for chases, slots, and openings in building structure during progress of construction to allow for mechanical installations.
C. Coordinate the installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
D. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning prior to closing in the building.
E. Coordinate connection of electrical services.
F. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.
G. Coordinate requirements for access panels and doors where mechanical items requiring access are concealed behind finished surfaces.
H. Coordinate installation of identifying devices after completing covering and painting where devices are applied to surfaces. Install identifying devices prior to installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.01 PIPE AND PIPE FITTINGS

A. Refer to individual piping system specification Sections for pipe and fitting materials and joining methods.
B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.02 JOINING MATERIALS

A. Refer to individual piping system specification Sections in Division 22 for special joining materials not listed below.
B. Pipe Flange Gasket Materials: Suitable for the chemical and thermal conditions of the piping system contents.
    1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch minimum thickness, except where thickness or specific material is indicated.
        a. Full-Face Type: For flat-face, Class 125 cast-iron and cast-bronze flanges.
        b. Narrow-Face Type: For raised-face, Class 250 cast-iron and steel flanges.
    2. ASME B16.20 for grooved, ring-joint, steel flanges.
    3. AWWA C110, rubber, flat face, 1/8-inch thick, except where other thickness is indicated; and full-face or ring type, except where type is indicated.
C. Solder Filler Metal: ASTM B 32.
    1. Alloy Sn95 or Alloy Sn94: Tin (approximately 95 percent) and silver (approximately 5 percent), having 0.10 percent lead content.
D. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.03 FIRE-STOPPING

A. Fire-Resistant Sealant: Provide UL Listed firestopping system for filling openings around penetrations through walls and floors, having fire-resistance ratings indicated as established by testing identical assemblies per ASTM E 814 by Underwriters Laboratory, Inc. or other testing and inspecting agency acceptable to authorities having jurisdiction.
B. Products: Subject to compliance with requirements, provide products by one of the following:
    1. Specified Technologies, Inc.
    2. 3M Corporation
    3. Metacaulk.
    4. Hilti, Inc.

PART 3 - EXECUTION

3.01 PIPING SYSTEMS--COMMON REQUIREMENTS

A. General: Install piping as described below, except where system Sections specify otherwise. Individual piping system specification Sections in Division 22 specify piping installation requirements unique to the piping system.

B. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, except where deviations to layout are approved on coordination drawings.

C. Install piping at indicated slope.

D. Install components having pressure rating equal to or greater than system operating pressure.

E. Install piping in concealed interior and exterior locations, except in equipment rooms and service areas.

F. Install piping free of sags and bends.

G. Install exposed interior and exterior piping at right angles or parallel to building walls. Diagonal runs are prohibited, except where indicated.

H. Install piping tight to slabs, beams, joists, columns, walls, and other building elements. Allow sufficient space above removable ceiling panels to allow for ceiling panel removal.

I. Install piping to allow application of insulation plus 1-inch clearance around insulation.

J. Locate groups of pipes parallel to each other, spaced to permit valve servicing.

K. Install fittings for changes in direction and branch connections.

L. Install couplings according to manufacturer's printed instructions.

M. Fire Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with U.L. Listed firestopping sealant system.

N. Verify final equipment locations for roughing in.

O. Refer to equipment specifications in other Sections for roughing-in requirements.

P. Piping Joint Construction: Join pipe and fittings as follows and as specifically required in individual piping system Sections.

1. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
2. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
3. Soldered Joints: Construct joints according to AWS "Soldering Manual," Chapter 22 "The Soldering of Pipe and Tube."
4. Brazed Joints: Construct joints according to AWS "Brazing Manual" in the "Pipe and Tube" chapter.
5. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full inside diameter. Join pipe fittings and valves as follows:
   a. Note the internal length of threads in fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint.
   b. Apply appropriate tape or thread compound to external pipe threads (except where dry seal threading is specified).
   c. Align threads at point of assembly.
   d. Tighten joint with wrench. Apply wrench to valve end into which pipe is being threaded.
   e. Damaged Threads: Do not use pipe or pipe fittings having threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
6. Welded Joints: Construct joints according to AWS D10.12 "Recommended Practices and Procedures for Welding Low Carbon Steel Pipe" using qualified processes and welding operators according to the "Quality Assurance" Article.

a. .
b. Poly (Vinyl Chloride) (PVC) Non-Pressure Application: ASTM D 2855.

Q. Piping Connections: Except as otherwise indicated, make piping connections as specified below.
1. Install unions in piping 2 inches and smaller adjacent to each valve and at final connection to each piece of equipment having a 2-inch or smaller threaded pipe connection.

3.02 EQUIPMENT INSTALLATION--COMMON REQUIREMENTS

A. Install equipment to provide the maximum possible headroom where mounting heights are not indicated.
B. Install equipment according to approved submittal data. Portions of the Work are shown only in diagrammatic form. Refer conflicts to the Design Professional.
C. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, except where otherwise indicated.
D. Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. Connect equipment for ease of disconnecting, with minimum of interference with other installations.
E. Install equipment giving right-of-way to piping systems installed at a required slope.

3.03 PAINTING AND FINISHING

A. Damage and Touch Up: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.
B. Paint all exposed steel surfaces of piping and supports with one coat of primer and two coats of enamel.

3.04 ERECTION OF METAL SUPPORTS AND ANCHORAGE

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.
B. Field Welding: Comply with AWS D1.1 "Structural Welding Code--Steel."

3.05 DEMOLITION

A. Disconnect, demolish, and remove work specified under Division 22 sections and as indicated.
B. Where pipe, ductwork, insulation, or equipment to remain is damaged or disturbed, remove damaged portions and install new products of equal capacity and quality.
C. Accessible Work: Remove indicated exposed pipe and ductwork in its entirety. Cap existing piping and ductwork that remains in place.
D. Abandoned Work: Cut and remove pipe abandoned in place, 2 inches beyond the face of adjacent construction. Cap piping and patch surface to match existing finish.
E. Removal: Remove indicated equipment, piping and ductwork from the Project site unless noted otherwise
F. Temporary Disconnection: Remove, store, clean, reinstall, reconnect, and make operational equipment indicated for relocation.
G. Remove all hangers, supports and anchors associated with mechanical items be removed. Patch surfaces to match adjacent finishes.

3.06 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations. Perform cutting by skilled mechanics of the trades involved.
B. Repair cut surfaces to match adjacent surfaces.

END OF SECTION 22 0500

SECTION 22 0553
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Pipe labels.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For color, letter style, and graphic representation required for each identification material and device.

PART 2 - PRODUCTS

2.01 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

1. Pipe Label Contents: Lettering Size: Size letters according to ASME A13.1 for piping.
2. Include identification of piping service: Labels shall identify piping as “Natural Gas”.
3. For 2-psi gas piping, provide identification: Labels shall identify piping as “2 PSIG”.
4.

PART 3 – EXECUTION

3.01 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.02 GENERAL INSTALLATION REQUIREMENTS

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Relocate mechanical identification materials and devices that have become visually blocked by work of this or other Divisions.

3.03 PIPE LABEL INSTALLATION

A. Pipe Label Locations: Locate pipe labels where piping is exposed and exterior exposed locations as follows:

1. Near each valve and control device.
2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
3. Near ground penetrations.
4. Near major equipment items and other points of origination and termination.
5. Spaced at maximum intervals of 25 feet along each run.

6. Natural Gas Piping Label Colors:
   a. Background: Safety green.
   b. Letter Colors: White.

END OF SECTION 22 0553

SECTION 22 1116
DOMESTIC WATER PIPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Piping and fittings.
2. Piping joining materials.

1.03 ACTION SUBMITTALS

A. Product Data: For transition fittings and dielectric fittings.

PART 2 - PRODUCTS

2.01 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

B. Potable-water piping and components shall comply with NSF 14, NSF 61, and NSF 372. Include marking "NSF-pw" on piping.

2.02 COPPER TUBE AND FITTINGS

A. Hard Copper Tube: ASTM B88, Type L (ASTM B88M, Type B) water tube, drawn temper.

B. Soft Copper Tube: ASTM B88, Type K (ASTM B88M, Type A) water tube, annealed temper.

C. Cast-Copper, Solder-Joint Fittings: ASME B16.18, pressure fittings.

D. Wrought-Copper, Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.

2.03 PIPING JOINING MATERIALS

A. Solder Filler Metals: ASTM B32, lead-free alloys.

B. Flux: ASTM B813, water flushable.

PART 3 – EXECUTION

3.01 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping.

B. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.

3.02 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID.

C. Soldered Joints for Copper Tubing: Apply ASTM B813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B828 or CDA's "Copper Tube Handbook."

D. Joints for Dissimilar-Material Piping: Make joints using adapters compatible with materials of both piping systems.

3.03 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. When installing piping adjacent to equipment and machines, allow space for service and maintenance.

3.04 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Piping Inspections:

a. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.

b. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:

1) Roughing-in Inspection: Arrange for inspection of piping before concealing or closing in after roughing in and before setting fixtures.

2) Final Inspection: Arrange for authorities having jurisdiction to observe tests specified in “Piping Tests” Subparagraph below and to ensure compliance with requirements.

c. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.

d. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

3.05 PIPING SCHEDULE

A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

B. Domestic water piping, NPS 3 and smaller shall be the following:

1. Hard copper tube, ASTM B88, Type L (ASTM B88M, Type B; cast or wrought copper, solder-joint fittings; and [brazed] [soldered] joints.

END OF SECTION 22 1116

SECTION 22 1316
DRAINAGE AND VENT PIPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.02 SUMMARY

A. This Section includes sanitary drainage and vent piping inside building and to locations indicated.

1.03 DEFINITIONS

A. Soil, Waste and Vent Piping: Piping inside building that conveys wastewater and vapors from fixtures and equipment throughout the building.

1.04 QUALITY ASSURANCE

A. Provide listing/approval stamp, label, or other marking on piping made to specified standards.

B. Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation.

PART 2 - PRODUCTS

2.01 PIPES AND TUBES

A. General: Applications of the following pipe and tube materials are indicated in Part 3 "Piping Applications" Article.

B. PVC Plastic Pipe: ASTM D 2665, Schedule 40.

2.02 PIPE AND TUBE FITTINGS

A. General: Applications of the following pipe and tube fitting materials are indicated in Part 3 "Piping Applications" Article.

B. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311 drain, waste, and vent pipe patterns.

2.03 JOINING MATERIALS

A. General: Applications of the following piping joining materials are indicated in Part 3 "Piping Applications" Article.

B. Refer to Division 22 Section for commonly used joining materials.

C. Couplings: Assemblies with combination of clamps, gaskets, sleeves, and threaded or flanged parts; made by piping system manufacturer for joining system piping.

D. Transition Couplings: Coupling or other manufactured fitting same size as, with pressure rating at least equal to, and with ends compatible with piping to be joined.

PART 3 - EXECUTION

3.01 PIPING APPLICATIONS

A. Transition and special fittings with pressure ratings at least equal to piping pressure rating may be used in applications below, unless otherwise indicated.

B. Soil, Waste, and Vent Piping: Use the following: PVC plastic pipe, PVC socket fittings, and solvent-cemented joints.

3.02 PIPING INSTALLATION, GENERAL

A. Refer to Division 22 Section for basic piping installation.

3.03 DRAINAGE AND VENT PIPING INSTALLATION

A. Install PVC plastic drainage piping according to ASTM D 2665.

3.04 JOINT CONSTRUCTION

A. Refer to other Division 22 sections for basic piping joint construction.

B. PVC Piping Joints: Join drainage piping according to ASTM D 2665.

3.05 CONNECTIONS

A. Connect drainage piping as indicated.

3.06 FIELD QUALITY CONTROL

A. Inspect drainage and vent piping as follows:

1. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
2. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
    a. Roughing-In Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
    b. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
3. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

END OF SECTION 22 1316

SECTION 22 1416
NATURAL GAS PIPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.02 SUMMARY

A. This Section includes piping, specialties, and accessories for natural gas systems within building and to gas meters.

1.03 DEFINITIONS

A. Gas Service: Pipe from gas main or other source to gas point of delivery for building being served. Piping includes gas service piping, gas valve, service pressure regulator, meter bar or meter support, and gas meter.

B. Gas Delivery Point: Gas meter or service pressure regulator outlet, or gas service valve if gas meter is not provided.

1.04 SYSTEM PERFORMANCE REQUIREMENTS

A. Minimum Working-Pressure Ratings: Except where otherwise indicated, minimum pressure requirements are as follows:

1. Natural Gas Piping: 10 psig.

1.05 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract.

B. Product Data for each type of natural gas specialty and special-duty valve. Include pressure rating, rated capacity, and settings of selected models.

C. Coordination Drawings for natural gas piping, including required clearances and relationship to other services for same work areas.

D. Test reports specified in "Field Quality Control" Article in Part 3.

E. Maintenance data for natural gas specialties and special-duty valves to include in the operation and maintenance manual.

1.06 QUALITY ASSURANCE

A. Comply with International Fuel Gas Code and NFPA 54, "National Fuel Gas Code," for gas piping materials and components; installations; and inspecting, testing, and purging.

B. Comply with NFPA 70, "National Electrical Code," for electrical connections between wiring and electrically operated control devices.

C. Provide listing/approval stamp, label, or other marking on equipment made to specified standards.

D. Listing and Labeling: Provide equipment and accessories specified in this Section that are listed and labeled.

1. Terms "Listed" and "Labeled": As defined in National Electrical Code, Article 100.

E. Product Options: Drawings indicate size, profiles, connections, dimensional requirements, and characteristics of natural gas piping equipment, specialties, and accessories and are based on specific types and models indicated. Other manufacturers' equipment and components with equal performance characteristics may be considered.

F. Press-fit Metallic Fittings: Comply with ANSI LC-4/CSA 6.32 and ASME B16.51 for use in natural gas distribution systems.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handling Flammable Liquids: Remove and legally dispose of liquids from drips in existing gas piping. Handle cautiously to avoid spillage and ignition. Notify gas supplier. Handle flammable liquids used by Installer with proper precautions and do not leave on premises from end of one day to beginning of next day.

1.08 SEQUENCING AND SCHEDULING

A. Notification of Interruption of Service: Notify each affected user when gas supply will be turned off.

B. Work Interruptions: Leave gas piping systems in safe condition when interruptions in work occur during repairs or alterations to existing gas piping systems.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Gas Ball Valves, 4-Inch NPS and Smaller:
    a. Jomar Valve
    b. Legend Valve
    c. McDonald: A.Y. McDonald Mfg. Co.
    d. Milwaukee Valve Co., Inc.
    e. Nibco.

2.02 PIPES AND TUBES

A. Steel Pipe: ASTM A 53; Type E, electric-resistance welded or Type S, seamless; Grade B; Schedule 40; black.

2.03 PIPE AND TUBE FITTINGS

A. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern, with threaded ends conforming to ASME B1.20.1.

B. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends conforming to ASME B1.20.1.

C. Cast-Iron Flanges and Flanged Fittings: ASME B16.1, Classes 125 and 250.

D. Steel Fittings: ASME B16.9, wrought steel, butt-welding type; and ASME B16.11, forged steel.

E. Steel Flanges and Flanged Fittings: ASME B16.5.

F. Press-fit Fittings: Caron steel with corrosion-resistant coating; conforming to ASTM A420 or ASME B16.3 and ANSI LC-4/CSA 6.32.

G. Transition Fittings: Type, material, and end connections to match piping being joined.

2.04 JOINING MATERIALS

A. Common Joining Materials: Refer to Division 22 Sections for joining materials not included in this Section.

B. Joint Compound and Tape: Suitable for natural gas.

C. Gasket Material: Thickness, material, and type suitable for natural gas.

D. Press-fit Fittings: HNBR seals compatible with natural gas.

2.05 VALVES

A. Gas Valves, 4-Inch NPS and Smaller: 250 psig WOG minimum, equivalent to ASME B16.33, bronze body with chrome plated brass ball and polytetrafluoroethylene (PTFE) seats and seals Include lever handle or flat head and threaded ends conforming to ASME B1.20.1.

B. Gas Valves, 4-Inch NPS and Smaller:125 psig WOG minimum, equivalent to ASME B16.33; bronze or carbon-steel body; brass or stainless-steel stem, stainless steel ball, HBNR or PTFE seat; HBNR pipe seals and carbon-steel press-fit ends. Include lever handle.

PART 3 - EXECUTION

3.01 PREPARATION

A. Close equipment shutoff valves before turning off gas to premises or section of piping. Perform leakage test as specified in "Field Quality Control" Article to determine that all equipment is turned off in affected piping section.

B. Comply with NFPA 54 Paragraph "Prevention of Accidental Ignition."

3.02 SERVICE ENTRANCE PIPING

A. Extend natural gas piping and connect to gas distribution system (gas service) piping in location and size indicated for gas service entrance to building.

B. Install shutoff valve, downstream from gas meter, outside building at gas service entrance.

3.03 GAS METER

A. Gas distribution system piping, service pressure regulator and gas meter will be provided by gas utility under this section. All fees for meter installation and connection shall be borne under this section.

3.04 PIPING APPLICATIONS

A. General: Flanges, unions, transition and special fittings, and valves with pressure ratings same as or higher than system pressure rating may be used in applications below, except where otherwise indicated.

B. Natural Gas Systems: Use the following:

1. 4-Inch NPS and Smaller: Steel pipe with press-fit fittings.
2. 4-Inch NPS and Smaller: Steel pipe, malleable-iron threaded fittings, and threaded joints.
3. 4-Inch NPS and Larger: Steel pipe, butt-welding fittings, and welded joints.

3.05 VALVE APPLICATIONS

A. Use gas valves for shutoff to appliances with 2-inch NPS or smaller low-pressure gas supply.

B. Use gas valves of sizes indicated for gas service piping, meters, mains, and where indicated.

3.06 PIPING INSTALLATIONS

A. Refer to Division 22 Sections for basic piping installation requirements.

B. Drips and Sediment Traps: Install drips at points where condensate may collect. Include outlets of gas meters. Locate where readily accessible to permit cleaning and emptying. Do not install where condensate would be subject to freezing.

1. Construct drips and sediment traps using tee fitting with bottom outlet plugged or capped. Use minimum-length nipple of 3 pipe diameters, but not less than 3 inches long, and same size as connected pipe. Install with space between bottom of drip and floor for removal of plug or cap.

C. Install gas piping at uniform grade of 0.1 percent slope upward toward risers.

D. Connect branch piping from top or side of horizontal piping.

E. Install unions in pipes 2-inch NPS and smaller, at final connection to each piece of equipment, and elsewhere as indicated. Unions are not required on flanged devices.

F. Press-Fit Joints: Join piping and pressure-for fittings with tools recommended by fitting manufacturer. Mark proper insertion depth prior to making press connection.

G. Anchor piping to ensure proper direction of piping expansion and contraction. Install expansion joints, expansion loops, and pipe guides as indicated.

3.07 JOINT CONSTRUCTION

A. Refer to Division 22 Sections for basic piping joint construction.

B. Use materials suitable for natural gas service.

3.08 VALVE INSTALLATION

A. Install valves in accessible locations, protected from damage.

B. Tag valves with metal tag indicating piping supplied. Attach tag to valve with metal chain.

C. Install gas valve upstream from each gas pressure regulator.

3.09 HANGER AND SUPPORT INSTALLATION

A. Refer to Division 22 Sections for pipe hanger and support devices.

B. Install hangers for horizontal steel piping with the following maximum spacing and minimum rod sizes:

1. 1/2-Inch NPS: Maximum span, 72 inches; minimum rod size, 3/8 inch.
2. 3/4- and 1-Inch NPS: Maximum span, 96 inches; minimum rod size, 3/8 inch.
3. 1-1/4-Inch NPS: Maximum span, 108 inches; minimum rod size, 3/8 inch.
4. 1-1/2- and 2-Inch NPS: Maximum span, 108 inches; minimum rod size, 3/8 inch.
5. 2-1/2- to 3-Inch NPS: Maximum span, 10 feet; minimum rod size, 1/2 inch.
6. 4-Inch NPS and Larger: Maximum span, 10 feet; minimum rod size, 5/8 inch.

C. Support vertical pipe and tube at each floor.

3.10 CONNECTIONS

A. Install gas piping next to equipment and appliances using gas to allow service and maintenance.

B. Connect gas piping to equipment and appliances using gas with shutoff valves and unions. Install gas valve upstream from and within 72 inches of each appliance using gas. Install union or flanged connection downstream from valve.

C. Sediment Traps: Install tee fitting with capped nipple in bottom forming drip, as close as practical to inlet for appliance using gas.

D. Electrical Connections: Wiring is specified in Division 26 Sections.

3.11 ELECTRICAL BONDING AND GROUNDING

A. Install aboveground portions of natural gas piping systems that are upstream from equipment shutoff valves, electrically continuous, and bonded to grounding electrode according to NFPA 70.

B. Do not use gas piping as grounding electrode.

3.12 PAINTING

A. Exterior Applications: Paint all exposed steel surfaces of piping and supports with one coat of primer and two coats of gray enamel.

3.13 FIELD QUALITY CONTROL

A. Inspect, test, and purge piping according to "Gas Piping Inspection, Testing, and Purging" in NFPA 54 and International Fuel Gas Code.

B. Test piping for minimum of two hours. Test pressures shall be equal to twice the minimum working pressure ratings shown in section 221416, paragraph 1.4. A.

C. Repair leaks and defects with new materials and retest system until satisfactory results are obtained.

D. Report test results promptly and in writing to the Design Professional and authorities having jurisdiction.

E. Verify capacities and pressure ratings of gas meters, regulators, valves, and specialties.

F. Verify correct pressure settings for pressure regulators.

G. Verify that specified piping tests are complete.

H. Label piping for type of type gas and gas pressure.

3.14 ADJUSTING

A. Adjust controls and safety devices. Replace damaged and malfunctioning controls and safety devices.

END OF SECTION 22 1416

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SECTION 22 2023

UNDERGROUND NATURAL GAS DISTRIBUTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.02 SUMMARY

A. This section covers the exterior gas distribution system and includes piping, unions, installation, and testing.

1.03 REFERENCE STANDARDS

A. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references:

1. International Fuel Gas Code.
2. NFPA 54, National Fuel Gas Code.
3. ASTM D2513, Standard Specification for Thermoplastic Gas Pipe, Tubing and Fittings.
4. ASTM D2774, Standard Practice for Underground Installation of Thermoplastic Pressure Piping.
5. ASTM F2620, Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings

1.04 QUALITY ASSURANCE

A. All materials, equipment and work shall meet all applicable federal, state and local requirements and conform to codes and ordinances of authorities having jurisdiction.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three (3) years documented experience.

C. Installer Qualifications: Company specializing in performing the Work of this Section with minimum three (3) years documented experience. Installation of natural gas systems shall be performed by individuals licensed as a Journeyman or Master Plumber by the appropriate state agency. All installation shall be supervised by a licensed Master Plumber. All testing shall be performed by a licensed Journeyman or Master Plumber.

1.05 SUBMITTALS

A. Product Data:

1. Provide manufacturer's product data and ratings on pipe materials, pipe fittings, and accessories.
2. Transition riser.
3. Warning tape.
4. Tracer wire.

B. Record Documents:

1. Submit test reports and inspection certification for all natural gas systems installed under this Contract.
2. Submit record drawings showing installed locations of underground piping, valves and regulators. Distances shall be measured from permanent above ground objects.
3. Provide full written description of manufacturer’s warranty.

C. Operation and Maintenance Data:

1. Include installation instructions, spare parts lists, exploded assembly views manufacturer's recommended maintenance.

1.06 DELIVERY, STORAGE and HANDLING

A. Store valves on site in shipping containers with labeling in place, inspect for damage and store with a minimum of handling. Store plastic piping under cover out of direct sunlight. Do not store materials directly on the ground.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work and isolating parts of completed system.

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

B. Pipe joint compound shall be lead-free, non-toxic, non-hardening, insoluble in the presence of natural gas and compliant with ANSI/NSF 61 and Federal Specification TT-S-1732. Temperature service range of -15 degrees F to +400 degrees F.

2.02 PIPING

A. Buried Piping Outside of Building:

1. Polyethylene, medium density, SDR-11, ASTM D2513 pipe and fittings with heat fusion socket joints.

2. Polyethylene pipe and fitting materials shall be compatible and by same manufacturer to ensure uniform melting and a proper bond. Fabricated fittings shall not be used.

B. Transition riser: MDPE fused coating on steel pipe for connection to above ground building distribution piping. Underground horizontal metallic portion of riser shall be at least 24-inches in length before connecting to the plastic service pipe. An approved transition fitting or adaptor meeting design pressure rating and plastic pipe manufacturers recommendations shall be used where the plastic joins the metallic riser.

2.03 UNDERGROUND WARNING TAPE AND TRACER WIRE

A. Warning Tape: Minimum 3-inch-wide polyethylene detectable type marking tape. The tape shall be resistant to alkalis, acids and other destructive agents found in soil and impregnated with metal so that it can be readily recognized after burial by standard locating equipment.

1. Lamination bond of one (1) layer of Minimum 0.35 mils thick aluminum foil between two (2) layers of minimum 4.3 mils thick inert plastic film.

2. Minimum tensile strength: 63 LBS per 3 IN width.

3. Minimum elongation: 500 percent.

4. Provide continuous yellow with black letter printed message repeated every 16 to 36 inches warning of pipe buried below (e.g.: "CAUTION GAS LINE BURIED BELOW").

B. Tracer Wire: #16-gauge awg copper clad steel conducer with 30-mil. HDPE insulation rated for 30-volts and direct burial.

2.04 UNIONS

A. Unions in 2 inches and smaller in ferrous lines shall be right- and left-hand nipple/coupling assembly, or ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends, 2-1/2 inches and larger shall be ground flange unions. Companion flanges on lines at various items of equipment, machines and pieces of apparatus may serve as unions to permit disconnection of piping.

B. Unions connecting ferrous pipe to copper or brass pipe shall be dielectric type.

PART 3 - EXECUTION

3.01 PREPARATION

A. Ream pipe ends and remove cutting burrs.

B. Remove dirt on inside and outside of piping, before assembly.

3.02 EQUIPMENT CONNECTIONS

A. Tapping of gas utility main shall be performed by local gas utility. Coordinate tie location. Contractor shall pay all costs.

B. Coordinate location of utility-provided gas meter. Install gas meter.

C. Provide specified connections, shutoff valves, regulators and unions at each gas meter and building.

D. Provide and install union type connections at all equipment to permit removal of service piping.

E. Rigid metallic pipe and fittings shall be used at service connections to all stationary equipment.

3.03 INSTALLATION

A. Provide transition riser at connection between buried plastic gas service piping and above grade piping in accordance with the gas code. Polyethylene piping shall not be installed above ground.

B. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

C. Provide support for and connections to natural gas service meter in accordance with requirements of the utility company.

D. All installation shall be in accordance with piping and equipment manufacturer’s published recommendations and ASTM D2774.

E. All excavation required shall be done in accordance with project specifications.

F. Do not install underground piping when bedding is wet or frozen.

G. Bury all underground piping at least 3 feet below finished grade. Provide a continuous detectable warning tape and tracer wire on tamped backfill, 12-inches above all buried non-metallic gas lines.

H. Do not install gas piping in the same trench with other utilities. The minimum horizontal clearance between gas pipe and parallel utility pipe shall be 2 feet. Do not install gas pipe through catch basins, vaults, manholes or similar underground structures.

I. Install and support all polyethylene piping in accordance with manufacturer's recommendations. All heat fusion welds shall be performed by welders qualified to the manufacturer’s procedures.

J. All above ground gas piping shall be electrically continuous and bonded to electrical system ground conductor in accordance with NFPA 70.

K. Provide and install union type fittings at proper points to permit dismantling or removal of pipe. No unions will be required in welded lines except at equipment connections. Where union type fittings are necessary for piping dismantling purposes, right and left nipples and couplings shall be used. Flanges, ground-joint unions or approved flexible appliance connectors may be used at exposed fixture, appliance or equipment connections.

L. Valves, regulators, flanges, union type fittings and similar appurtenances shall be accessible for operation and servicing.

M. Route piping in orderly manner and maintain gradient. Install piping to conserve building space.

N. Install piping to allow for expansion and Contraction without stressing pipe, joints, or connected equipment.

O. Close nipples, bushing and cross type fittings shall not be installed in any gas piping system.

P. Provide adequate clearance for access to and operation of all valves.

Q. Identify piping and valves in accordance with specifications.

3.04 TESTING

A. All natural-gas systems shall be inspected, tested, purged and placed into operation in accordance with NFPA 54 and as required herein.

B. All natural-gas piping systems shall be very carefully inspected, tested, purged and placed into operation by a licensed plumber.

C. All pneumatic tests shall be witnessed, recorded, and countersigned by the local inspector.

D. All necessary apparatus for conducting tests shall be furnished by the contractor and comply with the requirements of NFPA 54.

E. All new distribution piping and affected portions of existing systems connected to, shall be subjected to a pneumatic test pressure utilizing clean, dry air and must be demonstrated to be absolutely tight when subjected to the pressures and time durations listed herein. All equipment and components designed for operating pressures of less than the test pressure shall not be connected to the piping system during test.

1. Systems on which the normal operating pressure is less than 0.5 pounds per square inch gauge (psig), the test pressure shall be 5.0 psig and the time interval shall be 30 minutes.

2. Systems on which the normal operating pressure is 0.5 psig or greater, the test pressure shall be 1.5 times the normal operating pressure, and the time interval shall be two (2) hours.

F. After testing is complete, the entire gas system shall be purged with dry nitrogen to eliminate all air, debris, and moisture from the piping before natural gas is introduced into the system.

G. In all instances in which leaks are then found, they shall be eliminated in the manner designated by the Owner’s duly authorized representative. Testing operations shall be repeated until gas-piping systems are absolutely tight at the pneumatic test pressures indicated above.

END OF SECTION 22 2023

SECTION 26 0000
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 SUMMARY

This Division of the specifications (260000) covers the complete interior and exterior electrical system for all work shown on the drawings as specified herein providing all material, labor and equipment required for the installation of the electrical systems complete and in operating condition.

Include in the electrical work all the necessary supervision and the issuing of all coordinating information to any other trades who are supplying work to accommodate the electrical installations.

Submittal, Record Drawing and Operation and Maintenance Manual Procedures.

1.02 SUBMITTALS REQUIRED

Equipment connection coordination letter.

Utility Provider(s) coordination letters.

1.03 COORDINATION

This Contractor shall schedule his work and, in every way, possible cooperate with all other Contractors on the job to avoid delays, interferences, and unnecessary work. He shall notify them of all openings, hangers, excavations, etc., so that proper provisions shall be made for his work. This shall not relieve him of the cost of cutting, when such is required.

This Contractor shall do all cutting and excavating necessary for the complete installation of his work, but he shall not cut the work of any other Contractor without first consulting the Architect. He shall repair any work damaged by him or his workmen, employing the services of the Contractor whose work is damaged. Saw cut existing slab as required for routing conduits and floor boxes noted to be installed in existing floors. Restore to original finish.

This Contractor shall by all means coordinate the location of ceiling lighting fixtures, both recessed and surface mounted, with the Ceiling Contractor so that proper hangers and supports shall be provided.

Any conflict between electrical and other trades shall be reported before construction starts. No extra charges will be approved for work resulting from failure to coordinate with other trades.

Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.

2. To provide for ease of disconnecting the equipment with minimum interference to other installations.

3. To allow right of way for piping and conduit installed at required slope.

4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

Coordinate sleeve selection and application with selection and application of fire stopping.

1.04 DRAWINGS

The drawings for electrical work utilize symbols and schematic diagrams which have no dimensional significance. The work shall therefore, be installed to fulfill the diagrammatic intent expressed on the electrical drawings.

Review architectural drawings for door swings, cabinets, counters, moldings and built-in equipment, conditions indicated on architectural drawings shall govern. Prior to rough-in of receptacles and systems outlets refer to architectural casework drawings for rough-in coordination.

Coordinate electrical work with the architectural details, floor plans, elevations, structural and mechanical drawings. Provide fittings, junction boxes and accessories to meet conditions.

Do not scale drawings. Dimensions for layout of equipment, or spaces shall be obtained from architectural, structural or mechanical drawings unless specifically indicated on the electrical drawings.

Discrepancies shown on different drawings, between drawings and specifications or between drawings and field conditions shall be promptly brought to the attention of the Architect.

Provide as used on the drawings and in the specifications shall mean, furnish, install, connect, adjust and test.

The drawings and specifications are complimentary and any work or material shown in one and omitted in the other, or described in the one and not shown in the other, or which may be implied by both or either, shall be furnished as though shown on both, in order to give a complete and first class installation.

1.05 CODES AND PERMITS:

All electrical work shall meet or exceed the latest requirements of the following codes and/or other authorities exercising jurisdiction over the electrical construction work and the project.

1. The National Electrical Code (NFPA 70) - 2023 Edition
2. The National Electrical Safety Code (ANSI C-2)
3. The Life Safety Code (NFPA 101) - Georgia - 2024 Edition
4. The International Building Code - 2024 Edition
5. The International Fire Code – Georgia - 2024 Edition
6. Regulations of the local utility company with respect to metering and service entrance.
7. Municipal and State ordinances governing electrical work.

All required permits and inspection certificates shall be obtained, and made available at the completion of the work. Permits, inspections, and certification fees shall be paid for as a part of the electrical work.

1.06 EQUIPMENT CONNECTIONS:

All equipment requiring electrical power connections shall be connected under this Division of these specifications.

Where electrical connections to equipment require specific locations, such locations shall be obtained from shop drawings.

Drawings for location of conduit stub-up boxes mounted in wall or floor to serve specific equipment shall not be scaled.

Electrical circuits to equipment furnished under other sections of these specifications are based on design loads. If actual equipment furnished has loads other than design loads electrical circuits and protective devices shall be revised to be compatible with equipment furnished at no additional cost to the Owner. Any revisions must have prior approval by the Architect.

Where equipment is indicated to be served thru conduit stub-up, conduit shall be stubbed up not less than four inches above floor where transition shall be made to sealtite flexible conduit for connection to equipment.

The Contractor's attention is invited to other Divisions of these specifications, where equipment requiring electrical service or electrically related work is specified to become fully aware of the scope of work required for electrical service or related work.

Where electricity utilizing equipment is supplied separate from the electrical work, and is energized, controlled or otherwise made operative by electrical work, the testing to provide the proper functional performance of such wiring systems shall be conducted by the trade responsible for the equipment. The electrical work shall, however, include cooperation in such testing and the making available of any necessary testing or adjustments to the electrical equipment.

Contractor is to note that location of disconnect switches shown are schematic in nature. Exact location of disconnect switch and mounting height shall be coordinated with field conditions and equipment shop drawings. Locate disconnect as required to maintain clearances required by National Electrical Code.

1.07 GUARANTEE:

All systems and component parts shall be guaranteed entire length of warranty as specified by the Architect from the date of final acceptance of the complete project. Defects found during this guaranteed period shall be promptly corrected at no additional cost to the Owner.

1.08 PRODUCT DATA, SAMPLES AND SHOP DRAWINGS SUBMITTAL PROCEDURE

See Division 26 – Electrical Submittal Procedures specification section.

1.09 RECORD DRAWINGS:

One complete set of electrical drawings shall be reserved for as-built drawings. Any approved deviation from the contract drawings shall be recorded on these drawings. Drawings shall be checked monthly for completeness.

Completed as-built drawings shall be presented to the Architect prior to final inspection.

1.10 MAINTENANCE AND OPERATING INSTRUCTIONS:

Provide at the time of final inspection three sets of maintenance and operating instruction for:

1. Lighting and Power Panelboards
2. Fuses
3. Disconnect Switches
4. Fire Alarm System
5. Surge Protection System
6. Intrusion Alarm System

7. Data/Voice Network Cabling System

8. IP Intercom & Clock System

Furnish a qualified and accredited factory trained technician to train personnel designated by the Owner in the proper operation and maintenance of specialized equipment.

The issuing of operating instructions shall include the submission of the name, address, and telephone number of the manufacturer's representative and service company for each item of equipment so that service and spare parts can be readily obtained.

PART 2 - PRODUCTS

2.01 MATERIALS:

Materials specified by manufacturer's name shall be used unless approval of other manufacturers is listed in addenda to these specifications.

Drawings indicating proposed layout of space, all equipment to be installed therein and clearance between equipment shall be submitted, where substitution of materials alter space requirements on the drawings.

Material Standards: All materials shall be new and shall conform to the standards where such have been established for the particular material in question. Publications and Standards of the organization listed below are applicable to materials specified herein.

1. American Society for Testing and Materials (ASTM)

2. Underwriter's Laboratories, Inc. (UL)

3. National Electrical Manufacturer Association (NEMA)

4. Insulated Cable Engineers Association (ICEA)

5. Institute of Electrical and Electronic Engineers (IEEE)

6. National Fire Protection Association (NFPA)

7. American National Standards Institute (ANSI)

Material of the same type shall be the product of one manufacturer.

Materials not readily available from local sources shall be ordered immediately upon approval.

The Architect shall have authority to reject any materials, or equipment, not complying with these specifications and have the Contractor replace materials so rejected immediately upon notification of rejection.

Any material or equipment so rejected shall be removed from the job within 24 hours of such rejection; otherwise the Architect may have same removed at the Contractor's expense.

2.02 PRODUCT DELIVERY, STORAGE, HANDLING, & PROTECTION

Inspect materials upon arrival at Project and verify conformance to Contract Documents. Prevent unloading of unsatisfactory material. Handle materials in accordance with manufacturer's applicable standards and suppliers recommendations, and in a manner to prevent damage to materials. Store packaged materials in original undamaged condition with manufacturer's labels and seals intact. Containers which are broken, opened, damaged, or watermarked are unacceptable and shall be removed from the premises.

All material, except items specifically designed to be installed outdoors such as pad mounted transformers or stand-by generators, shall be stored in an enclosed, dry building or trailer. Areas for general storage shall be provided by the Contractor. Provide temperature and/or humidity control where applicable. No material for interior installation, including conductors, shall be stored other than in an enclosed weather tight structure. Equipment stored other than as specified above shall be removed from the premises.

Equipment and materials shall not be installed until such time as the environmental conditions of the job site are suitable to protect the equipment or materials. Conditions shall be those for which the equipment or materials are designed to be installed. Equipment and materials shall be protected from water, direct sunlight, cold or heat. Equipment or materials damaged or which are subjected to these elements are unacceptable and shall be removed from the premises and replaced.

PART 3 - EXECUTION

3.01 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

Comply with NECA 1.

Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

Right of Way: Give to piping systems installed at a required slope.

Raceways, fixtures, devices, and other electrical equipment shall be installed in a neat and workmanlike manner.

The Architect or his representative shall have the authority to reject any workmanship not complying with the contract documents.

The Electrical Contractor shall personally or through an authorized licensed and competent electrician, constantly supervise the work from beginning to complete and final inspection.

Electrical equipment shall be installed in accordance with manufacturer's recommendations.

Locations of proposed raceway, riser, location of structural elements, location and size of chases method and type of construction of floors, walls, partitions, etc., shall be verified before construction starts.

Consult owner and utility companies for underground lines before any underground work is started. Contractors shall be responsible for any damage.

All empty conduits shall have a pull string installed. All flush recessed boxes shall have blank plates installed.

3.02 CLEANING AND PAINTING

Remove oil, dirt, grease and foreign materials from all raceways, fittings, boxes, panelboard trims and cabinets to provide a clean surface for painting. Touch-up scratched or marred surfaces of lighting fixtures, panelboard and cabinet trims, motor control center, switchboard or equipment enclosures with paint furnished by the equipment manufacturers specifically for that purpose.

Do not paint trim covers for flush mounted panelboards, telephone cabinets, pull boxes, junction boxes and control cabinet unless required by the Architect. Remove trim covers before painting. Under no conditions shall locks, latches or exposed trim clamps be painted.

Unless indicated on the drawings or specified herein to the contrary, all painting shall be done under the PAINTING Section of these Specifications.

Where plywood backboards are used to mount equipment provided under Division 26, paint backboards with two coats of light grey semi-gloss paint. Plywood shall be 3/4" fire rated plywood. Paint shall be fire retardant paint.

3.03 SERVICE:

A. The electrical service and telephone/CATV service for this project has been coordinated between the Engineer and the Utility Company. However, before installing service conduit (underground or mast), Contractor shall contact Utility Company and verify voltage, location and type of service. Prior to rough-in, coordinate an on-site

meeting with each Utility Company to review exact requirements. Submit letter of coordination to Engineer for review.

1. Contractor shall install meter (provided by Utility Company) on a 6” channel iron set in concrete. Paint channel iron to match transformer. Install 1 ¼” galvanized rigid steel conduit from meter to transformer C.T. compartment.

2. Install a 1 1/4” galvanized rigid steel conduit from meter and stubbed up into Main Electrical Room for future energy management monitoring. Install pull string and cap conduit.

3.04 DEVIATIONS:

No deviations from the plans and specifications shall be made without the full knowledge and consent of the Architect or his authorized representative.

Should the Contractor find at any time during progress of the work that, in his judgment, existing conditions make desirable a modification in requirements covering any particular item or items, he shall report such items promptly to the Architect for his decision and instruction.

3.05 EXCAVATION, TRENCHING AND BACKFILLING:

General. The Contractor shall perform all excavation to install conduit structures and equipment specified in this Division of the Specifications. During excavation, materials for backfilling shall be piled back from the banks of the trench to avoid over-loading and to prevent slides and cave-ins. All excavated materials not to be used for backfill shall be removed and disposed of by the Contractor. Grading shall be done to prevent surface water from flowing into trenches and other excavations and water accumulating therein shall be removed by pumping. All excavations shall be made by open cut. No tunneling shall be done. All requirements of OSHA shall be complied with.

Trench Excavation. The bottom of the trenches shall be graded to provide uniform bearing and support for each section of the conduit on undisturbed soil at every point along its entire length. Over depths shall be backfilled with loose, granular, moist earth, tamped. Removed unstable soil that is not capable of supporting the conduit and replace with specified material.

Backfilling. The trenches shall not be backfilled until it is reviewed by the Architect or his representative. The trenches shall be backfilled with the excavated materials approved for backfilling, consisting of earth, loam, sandy clay, and gravel or soft shale, free from large clods of earth or stones, deposited in 6" layers and tamped until the conduit has a cover of not less than the adjacent existing ground but not greater than 2" above existing ground. The backfilling shall be carried on simultaneously on both sides of the trench so that conduit is not displaced. The compaction of the filled trench shall be at least equal to that of the surrounding undisturbed material, except that trenches occurring under paved areas or in areas to be filled shall be backfilled in 6" maximum layers and each

layer compacted to 95% maximum density. Settling the backfill with water will not be permitted. Any trenches not meeting compaction requirements or where settlement occurs shall have backfill removed down to the top of the conduit then backfill with approved materials as specified hereinbefore.

Positively no tree roots are to be damaged, hand dig where required. Damaged trees or shrubbery shall be replaced in kind and must be approved by Engineer.

3.06 FIRESTOPPING

Apply fire stopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly.

3.07 CONSTRUCTION REVIEWS

The Architect or his representative shall observe and review the installation of all electrical systems shown on the drawings and as specified herein.

Before covering or concealing any conduit below grade or slab, in wall or above ceiling, the contractor shall notify the Architect so that he can review the installation.

3.08 CONTRACTOR'S FINAL INSPECTION

Contractor shall refer to individual electrical specification sections for all testing, commissioning and training requirements specific to each section.

At the time of the Contractor's final inspection, all systems shall be checked and tested for proper installation and operation by the Contractor in the presence of the Architect or his representative.

The Contractor shall furnish the personnel, tools and equipment required to inspect and test all systems.

Following is a list of items that the contractor must demonstrate to the Architect or his representative as complying with the plans and specifications. Please note that this list does not necessarily represent all items to be covered in the final inspection, but should give the Contractor an idea of what is to be reviewed.

1. Service ground, show connection to ground rod and cold water main.

2. Demonstrate that main service equipment is properly bonded.

3. Demonstrate that all panels have breakers as specified, ground bar, copper bus, typed directory for circuit identification and that they are free of trash.

4. Demonstrate that all conduits are supported as required by the National Electrical Code.

5. Demonstate that all conductors are providing with correct color coding. This should include all branch ciruct neutral conductor striping.

6. Demonstrate that all outlet boxes above or on the ceiling are supported as required by the National Electrical Code.

7. Demonstrate that outlet boxes in wall or ceilings of combustible materials are flush with surface of wall or ceiling, and that outlet boxes in walls or ceilings of non-combustible materials are so installed that the front edge of the box or plaster ring is not set back more than 1/4".

8. Demonstrate that outlet boxes in wall are secure.

9. Demonstrate that all devices are properly secured to boxes, that device plates are properly aligned and are not being used to secure device.

10. Utilizing a Woodhead No. 1750 testing device, demonstrate that all 125 volt receptacles are properly connected.

11. Demonstrate that all disconnects requiring fuses are fused with the proper size and type, and that all disconnects are properly identified.

12. Demonstrate that Fire Alarm System is in proper working order, initiating an alarm signal from each manual and automatic device (including smoke detectors).

13. Demonstrate that Intrusion Alarm System is in proper working order and meeting all requirements outlined in specifications

14. Demonstrate that IP Intercom System is in proper working order and meeting all requirements outlined in specifications.

15. Demonstrate that Data/Voice Network and Cable System are in proper working order and meeting all requirements outlined in specifications.

END OF SECTION

SECTION 26 0005
ELECTRICAL SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes requirements for the preparation of Electrical Division 16 Shop Drawings, Product Data, Samples, and other submittals.

PART 2 - PRODUCTS

2.01 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

B. All submittals shall be submitted in electronic format.

C. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into indexed files incorporating submittal requirements of each single Specification Section and transmittal form with links enabling navigation to each item.

2. Name file with submittal number or other unique identifier, including revision identifier.

    a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software acceptable to Owner, containing the following information for EACH SECTION:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name of Construction Manager/General Contractor.
    e. Name of Electrical Contractor.
    f. Name of firm or entity that prepared submittal.
    g. Names of subcontractor, manufacturer, and supplier.

h. Specification Section number and title.
i. Indication of full or partial submittal.

D. Options: Identify options requiring selection by Architect.

E. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

F. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.

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 with approval notation from Architect's action stamp.

2.02 SUBMITTAL DATA – REFER TO EACH SPECIFICATION SECTION FOR REQUIREENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. Mark each copy of each submittal to show which products and options are applicable.

2. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

3. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams showing factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

4. Submit Product Data before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
   a. Identification of products.
   b. Schedules.
   c. Compliance with specified standards.
   d. Notation of coordination requirements.
   e. Notation of dimensions established by field measurement.
   f. Relationship and attachment to adjoining construction clearly indicated.
   g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

D. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ENGINEER’S ACTION

A. Submittals: Engineer will review each submittal, make marks to indicate corrections or revisions required, and return it.

B. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

C. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION

SECTION 260519
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.02 SUBMITTALS REQUIRED

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.01 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Alpha Wire Company.
2. Cerro Wire LLC.
3. Encore Wire Corporation.
4. General Cable; General Cable Corporation.
5. Senator Wire & Cable Company.
6. Southwire Company.

B. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

C. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN/THWN-2 and Type SO.

2.02 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. 3M.
2. AFC Cable Systems, Inc.
3. Gardner Bender.
4. Hubbell Power Systems, Inc.

5. Ideal Industries, Inc.
6. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.03 SYSTEM DESCRIPTION

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

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.01 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.

3.02 CONDUCTOR INSULATION, APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type THHN/THWN-2, single conductors in raceway.

B. Feeders: Type THHN/THWN-2, single conductors in raceway.

C. Branch Circuits: Type THHN/THWN-2, single conductors in raceway.

D. Shall be not less than indicated on the drawings and not less than required by the NEC.

E. Minimum size shall be No. 12 AWG copper provided the maximum voltage drops in the control circuits will not adversely affect the operation of the controls.

F. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

G. Power-Circuit Conductor Identification, 600 V or Less: For conductors in pull and junction boxes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder and branch-circuit conductors.

    a. Color shall be factory applied to outer jacket of conductor for all conductors of sizes No. 6 AWG and smaller.
    b. Color shall be factory applied or field applied for sizes larger than No. 4 AWG, if authorities having jurisdiction permit.
    c. Colors for 208/120-V Circuits:

        1) Phase A: Black.
        2) Phase B: Red.
        3) Phase C: Blue.
        4) Neutral: White
        5) Multi-wire branch circuit Dedicated Neutral: White with appropriate tracer (white with red tracer, white with blue tracer, white with black tracer).

    d. Colors for 480/277-V Circuits:

        1) Phase A: Brown.
        2) Phase B: Orange.
        3) Phase C: Yellow.
        4) Neutral: Gray
        5) Multi-wire branch circuit Dedicated Neutral: White with appropriate tracer (gray with brown tracer, gray with orange tracer, gray with yellow tracer)

    e. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

3.03 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 26 0533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. 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.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Support cables according to Section 26 0529 "Hangers and Supports for Electrical Systems."

3.04 CONNECTIONS

A. 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-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.05 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 26 0553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.06 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 0544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.07 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Division 7 "Penetration Firestopping."

3.08 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors and conductors feeding the following critical equipment and services 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.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION

SECTION 26 0526
GROUNDING AND BONDING

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes grounding systems and equipment, plus the following special applications:

1. Underground distribution grounding.

1.02 SUBMITTALS REQUIRED

A. Product Data: For each type of product indicated.

1.03 CLOSEOUT DOCUMENTS

A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.

1.04 QUALITY ASSURANCE

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

B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. Harger Lightning and Grounding.
4. ILSCO.
5. O-Z/Gedney; A Brand of the EGS Electrical Group.

2.02 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 Conductor: No. 4 or No. 6 AWG, stranded conductor.

C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches by 12 inches(unless otherwise noted on drawings) in cross section, with 9/32-inchholes spaced 1-1/8 inchesapart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V. Lexan or PVC, impulse tested at 5000 V.

2.03 CONNECTORS

A. Listed and labeled by an NRTL 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, 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.

D. Bus-bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.04 GROUNDING ELECTRODES

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

PART 3 - EXECUTION

3.01 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 bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.
2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down to specified height above floor; connect to horizontal bus.

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.

3.02 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.03 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Signal and Communication Equipment: In addition to grounding and bonding required by NFPA 70, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A.

1. For telephone, alarm, voice and data, and other communication equipment, provide No. 6 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
2. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4-by-12-inch grounding bus.
3. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

3.04 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. Bonding Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

D. 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; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by 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.

E. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet apart.

3.05 LABELING

A. Comply with requirements in Section 26 0553 "Electrical Identification" for instruction signs. The label or its text shall be green.

B. Install labels at the telecommunications bonding conductor and grounding equalizer and at the grounding electrode conductor where exposed.

1. Label Text: "If this connector or cable is loose or if it must be removed for any reason, notify the facility manager."

3.06 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal , and at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

C. Grounding system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

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

1. Power Distribution Units or Panelboards Serving Electronic Equipment: 25 ohm(s).

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

END OF SECTION

SECTION 26 0529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.02 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.

1.03 QUALITY ASSURANCE

A. Comply with NFPA 70.

1.04 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 3.

B. Coordinate installation of roof curbs, equipment supports, and roof penetrations.

PART 2 - PRODUCTS

2.01 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. Painted Coatings: Manufacturer standard painted coating applied according to MFMA-4.
3. 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 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 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. 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.

2. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
3. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
5. Toggle Bolts: All-steel springhead type.
6. Hanger Rods: Threaded steel.

2.02 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 5 Section "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.01 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, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inchin diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted 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 single-bolt conduit clamps.

3.02 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 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 New Concrete: Bolt to concrete inserts.
2. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
3. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69 .

4. To Light Steel: Sheet metal screws.
5. 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 anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.03 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Division 5 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.

3.04 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 3 Section "Cast-in-Place Concrete."

C. Anchor equipment to concrete base.

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.

3.05 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

END OF SECTION

SECTION 26 0533
RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.
7. Handholes and boxes for exterior underground cabling.

1.02 SUBMITTALS REQUIRED

Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

PART 2 - PRODUCTS

2.01 METAL CONDUITS, TUBING, AND FITTINGS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Allied Tube & Conduit.
2. Electri-Flex Company.
3. O-Z/Gedney.
4. Republic Conduit.
5. Thomas & Betts Corporation.

6. Western Tube and Conduit Corporation.

7. Wheatland Tube Company.

Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

GRC: Comply with ANSI C80.1 and UL 6.

EMT: Comply with ANSI C80.3 and UL 797.

FMC: Comply with UL 1; zinc-coated steel.

LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

8. Fittings for EMT, FMC and LFMC:

   a. Material: Steel.
   b. Type: Provide compression type for two inches (2") and smaller, steel set-screw type for conduits two and half inches (2 ½") and larger.

9. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.02 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. CANTEX Inc.

2. Condux International, Inc.

3. Electri-Flex Company.

4. Heritage Plastics

5. Kraloy.

6. Lamson & Sessions; Carlon Electrical Products.

7. RACO; Hubbell.

Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

Fittings for RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

Solvent cements and adhesive primers shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.03 METAL WIREWAYS AND AUXILIARY GUTTERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper B-Line, Inc.
2. Hoffman.
3. Mono-Systems, Inc.
4. Square D.

Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise indicated, and sized according to NFPA 70.

5. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

Wireway Covers: Screw-cover type unless otherwise indicated.

Finish: Manufacturer's standard enamel finish.

2.04 BOXES, ENCLOSURES, AND CABINETS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. EGS/Appleton Electric.
2. Erickson Electrical Equipment Company.
3. FSR Inc.
4. Hoffman.
5. Hubbell Incorporated.
6. Kraloy.
7. Milbank Manufacturing Co.
8. Mono-Systems, Inc.
9. O-Z/Gedney.
10. RACO; Hubbell.
11. Robroy Industries.
12. Thomas & Betts Corporation.
13. Wiremold / Legrand.

General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

A. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1. All boxes shall be labeled to identify circuits numbers and designations, or low-voltage systems use.

B. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, galvanized, cast iron with gasketed cover. All boxes shall be labeled to identify circuit's numbers and designations, or low-voltage systems use.

C. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

D. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.

E. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.

14. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

15. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

F. Cabinets:

1. NEMA 250, Type 1 or Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.

2. Hinged door in front cover with flush latch and concealed hinge.

3. Key latch to match panelboards.

4. Metal barriers to separate wiring of different systems and voltage.

5. Accessory feet where required for freestanding equipment.

6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.05 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

General Requirements for Handholes and Boxes:

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.

2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.

3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Armorcast Products Company.
b. Carson Industries LLC.
c. Quazite: Hubbell Power System, Inc.

4. Standard: Comply with SCTE 77.

5. Configuration: Designed for flush burial with open bottom unless otherwise indicated.

6. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.

7. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.

8. Cover Legend: Molded lettering, "ELECTRIC." or “COMMUNICATIONS”.

9. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.

10. Handholes dimensions as noted on drainings: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

PART 3 - EXECUTION

3.01 RACEWAY APPLICATION

Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.

2. Concealed Conduit, Aboveground: GRC, EMT, RNC, Type EPC-40-PVC.

3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.

4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.

5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

Indoors: Apply raceway products as specified below unless otherwise indicated:

6. Exposed, Not Subject to Physical Damage: EMT.

7. Exposed, Not Subject to Severe Physical Damage: EMT.

8. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include the following:

   a. Gymnasiums.

9. Concealed in Ceilings and Interior Walls and Partitions: EMT, Type EPC-40-PVC turned up concealed to a maximum height of 48”AFF.

10. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.

11. Damp or Wet Locations: GRC.

12. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.

Minimum Raceway Size: 1/2-inchtrade size.

Raceway Fittings: Compatible with raceways and suitable for use and location.

13. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.

14. EMT: Use setscrew or compression, steel fittings. Steel compression type for two inches (2”) and smaller, steel set-screw type for conduits two and half inches (2 ½”) and larger Comply with NEMA FB 2.10.

15. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

Install surface raceways only where indicated on Drawings.

Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F

3.02 INSTALLATION

Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

Each surface lighting fixture, receptacle and switch shall be provided with flush mounted outlet box. All outlets installed in panels and other architectural features shall be centered. The location of any outlet may be moved as much as 10'-0" by the Architect before the outlet is placed without incurring any extra cost. All dimensions refer to the finished floor line. Outlet boxes shall be pressed sheet steel and shall be galvanized for all concealed work. Where conduit runs are exposed outlets shall be of the cast metal type.

Boxes shall be for the service and the type of outlet and shall not be less than 4" square and 1-1/2" deep except where otherwise specified. Boxes installed in walls shall be provided with a square cornered 1-1/2" plaster ring installed flush with surface of wall. Coordinate depth of plaster ring required for particular wall construction. Each outlet box above ceiling shall be supported from a structural member of the building

either directly or by using a substantial and approved metal support. Conduit is not an approved means of support. Boxes installed in wall shall be supported either directly to a stud or between studs utilizing an approved bar hanger. In no case shall switch box support and clips used for mounting boxes in old work be used unless specifically called for. Top of outlet box shall be level.

All ceiling or wall recessed outlet boxes or their associated plaster rings shall be flush with the finished surface. Using coverplate to secure wiring devices or shimming the device is not acceptable. Contractor shall exercise due care when cutting opening in walls or ceilings for outlet boxes so that opening size will permit the proper installation of boxes and devices. Fixture studs in ceilings and bracket outlets shall be bolted with stove bolts or shall be locking type of stud mounting.

In addition to boxes indicated, install enough boxes to prevent damage to cables and wires during pulling-in operations.

Remove only knockouts as required and plug unused openings. Use threaded plugs for cast metal boxes and snap-in metal covers for sheet metal boxes.

"There shall be no outlets installed back to back. A minimum of 4" shall separate each outlet."

Where the volume allowed per conductor exceeds that allowed in Table 370-6(b) of the NEC for the minimum size outlet specified, a larger size outlet box shall be used and shall be sized in accordance with the table noted above.

Outlet boxes shall be clean and free from dust, paint, dirt, plaster ready mix joint compound and /or any other debris.

Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

Complete raceway installation before starting conductor installation.

Comply with requirements in Section 26 0529 "Hangers and Supports for Electrical Systems" for hangers and supports.

Arrange stub-ups so curved portions of bends are not visible above finished slab.

Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

Support conduit within 12 inches of enclosures to which attached.

Raceways Embedded in Slabs:

1. Run conduit larger than 1-inchtrade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support. Secure raceways to reinforcement at maximum 10-footntervals.

2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.

3. Arrange raceways to keep a minimum of 1 inchof concrete cover in all directions.

4. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.

Stub-ups to Above Recessed Ceilings:

5. Use EMT or RMC for raceways.

6. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inchtrade size and insulated throat metal bushings on 1-1/2-inchtrade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

Cut conduit perpendicular to the length. For conduits 2-inchtrade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lbtensile strength. Leave at least 12 inchesof slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

Surface Raceways:

7. Install surface raceway with a minimum 2-inch radius control at bend points.

8. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inchesand with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

9. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.

10. Where an underground service raceway enters a building or structure.

11. Where otherwise required by NFPA 70.

Comply with manufacturer's written instructions for solvent welding RNC and fittings.

Expansion-Joint Fittings:

12. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 degF and that has straight-run length that exceeds 25 feet Install in each run of aboveground RMC and EMT conduit that is located where environmental temperature change may exceed 100 degFand that has straight-run length that exceeds 100 feet

13. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:

    a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg Ftemperature change.
    b. Outdoor Locations Exposed to Direct Sunlight: 155 deg Ftemperature change.
    c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg Ftemperature change.
    d. Attics: 135 deg Ftemperature change.

14. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per degFof temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per degFof temperature change for metal conduits.

Install expansion fittings at all locations where conduits cross building or structure expansion joints. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inchesof flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

15. Use LFMC in damp or wet locations subject to severe physical damage.

16. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.

Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

Locate boxes so that cover or plate will not span different building finishes.

Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

Set metal floor boxes level and flush with finished floor surface. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.03 INSTALLATION OF UNDERGROUND CONDUIT

Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 3 "Earth Moving" for pipe less than 6 inches in nominal diameter.

2. Install backfill as specified in Division 3 "Earth Moving."

3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 31 2000 "Earth Moving."

4. Install manufactured rigid steel conduit elbows for stub-ups at poles, equipment, and at all building floor penetrations.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 incheson each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inchesfrom edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.
    c. All rigid steel conduit elbows shall be wrapped with Scotchwrap #50 corrosion protection tape.

5. Underground Warning Tape: Comply with requirements in Section 26 0553 "Identification for Electrical Systems."

3.04 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inchsieve to No. 4sieve and compacted to same density as adjacent undisturbed earth.

Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

Install handholes with bottom below frost line below grade.

Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables but short enough to preserve adequate working clearances in enclosure.

Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.05 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 0544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.06 FIRESTOPPING

Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 07 8413 "Penetration Firestopping."

3.07 PROTECTION

Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION

SECTION 26 0544
SLEEVES FOR RACEWAYS AND CABLING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
2. Grout.

B. Related Requirements:

1. Division 7 Section "Through-Penetration Firestop Systems" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

PART 2 - PRODUCTS

2.01 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
2. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

2.02 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.01 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:

a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 7 Section "Joint Sealants."
b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.
4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

G. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

END OF SECTION

SECTION 26 0553
ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Equipment identification labels.

1.02 SUBMITTALS REQUIRED

A. Product Data: For each electrical identification product indicated.

B. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

1.03 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.04 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.01 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

2.02 UNDERGROUND-LINE WARNING TAPE

A. Tape:

1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
2. Printing on tape shall be permanent and shall not be damaged by burial operations.
3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

B. Color and Printing:

1. Comply with ANSI Z535.1 through ANSI Z535.5.
2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.
3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.

2.03 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."

2.04 EQUIPMENT IDENTIFICATION LABELS

A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a black background. Minimum letter height shall be 3/8 inch

2.05 CABLE TIES

A. General-Purpose Cable Ties: Fungus inert, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: Black except where used for color-coding.

B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: Black.

C. Plenum-Rated Cable Ties: Self extinguishing, UV stabilized, one piece, self locking.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 7000 psi.
3. UL 94 Flame Rating: 94V-0.
4. Temperature Range: Minus 50 to plus 284 deg F.
5. Color: Black.

2.06 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in Division 9 painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

F. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

G. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall. Install warning tape over all underground conduits that are routed outside the building footprint.

H. Painted Identification: Comply with requirements in Division 9 painting Sections for surface preparation and paint application.

3.02 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Cables within Buildings: Identify the covers of all junction and pull boxes of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. Junction boxes containing line voltage wiring shall include panel and circuit designation (ex. HA - 1,3,5 or LA – 2,4,6).

B. System legends shall be as follows:

1. Emergency Power.
2. Power.
3. Lighting
4. Fire Alarm Systemntrusion Alarm System

C. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

D. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.

3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

E. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Limit use of underground-line warning tape to direct-buried cables.
2. Install underground-line warning tape for both direct-buried cables and cables in raceway.

F. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:
   a. Power transfer switches.
   b. Controls with external control power connections.

G. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inchigh letters for emergency instructions at equipment used for power transfer.

H. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:
   a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inchigh letters on 1-1/2-inchigh label; where two lines of text are required, use labels 2 inches high.
   b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
   c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
   d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:
   a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be engraved, laminated acrylic or melamine label.
   b. Enclosures and electrical cabinets.

c. Switchboards.
d. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
e. Emergency system boxes and enclosures.
f. Enclosed switches.
g. Enclosed circuit breakers.
h. Power transfer equipment.
i. Power-generating units.
j. Monitoring and control equipment.
k. Junction boxes

END OF SECTION

SECTION 26 6200
INTERCOM SYSTEM CONDUIT AND OUTLET SYSTEM

1.01 CONDUIT SYSTEM

A. Provide a complete system of conduits and outlet boxes intercom system wiring. Each intercom communication system outlet shall have a 3/4" conduit routed from the flushed recessed outlet box up to the accessible ceiling space above. Turn conduit out above ceiling with a 90° horizontal elbow and terminate with an insulated bushing. Where ceiling finish is exposed structure (i.e. no acoustical tile ceiling), extend conduit to an area with an accessible gypboard/acoustical ceiling. Provide nylon pull string in conduit. Utilize existing conduit where possible.

B. All conduit and outlet boxes shall be for integrated communication system cable only. Joint use with sound systems, fire, telephone, etc. it is not acceptable.

C. Location of outlets are existing.

D. Height of wall outlets shall be as noted on the drawings. All wall outlet boxes in new construction shall be two gang type, 4" x 4" x 2 1/8" deep, with single gang plaster rings. Plaster rings shall be flush with finish of wall. Coordinate depth of plaster ring required with type of wall construction.

E. Provide a dedicated 20 ampere, 120 volt circuit at each intercom communications system rack.

F. Intercom communications system rack shall be grounded with a #6 copper routed in ½" conduit to the ground bar in the nearest panel. If conduit is metal, provide grounding bushings at each end of conduit.

G. Conduit and its installation shall be as covered under Section 260020 of these specifications.

H. Device boxes are existing.

I. All conduit shall be concealed unless otherwise noted.

J. Coordinate exact location of all intercom communications systems outlets and conduit with Division 27 Contractor. All intercom communications shall be run exposed above acoustical tile ceiling. Any cabling routed in areas with no acoustical tile ceiling or for vertical or in wall runs shall be run in conduit.

END OF SECTION

SECTION 26 6210
DATA/VOICE CONDUIT SYSTEM

PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

A. A complete low voltage conduit and outlet system for the data/voice cabling system shall be provided by the contractor.

PART 2 - PRODUCTS

A. Refer to sections 260533 Raceways and Boxes for all conduit system requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The electrical contractor shall coordinate all rough in of all outlet boxes and conduit locations with the Data/Voice Network Cabling contractor.

1. All data/voice outlets are to be installed within six (6”) inches of a receptacle. The electrical contractor shall be responsible for review of cabling drawings and coordinate device locations. Conduit size shown shall be minimum 1” C., 90 degree elbow with plastic bushing, and pull string.

END OF SECTION

SECTION 27 0140
FIRE ALARM SYSTEM

PART 1 - GENERAL

1.01 SUBMITTALS

A. General

1. Two copies of all submittals shall be submitted to the Architect/Engineer for review.
2. All references to manufacturer's model numbers and other pertinent information herein is intended to establish minimum standards of performance, function and quality. Equivalent compatible UL-listed equipment from other manufacturers may be substituted for the specified equipment as long as the minimum standards are met.
3. All substitute equipment proposed as equal to the equipment specified herein, shall meet or exceed the following standards. For equipment other than that specified, the contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment.

B. Shop Drawings

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.
2. Include manufacturer's name(s), model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
3. Show annunciator layout, configurations, and terminations.

C. Manuals

1. Submit simultaneously with the shop drawings, complete operating and maintenance manuals listing the manufacturer's name(s), including technical data sheets.
2. Wiring diagrams shall indicate internal wiring for each device and the interconnections between the items of equipment.
3. Provide a clear and concise description of operation that gives, in detail, the information required to properly operate the equipment and system.
4. Approvals will be based on complete submissions of manuals together with shop drawings.

D. Software Modifications

1. Provide the services of a factory trained and authorized technician to perform all system software modifications, upgrades or changes. Response time of the technician to the site shall not exceed 4 hours.

2. Provide all hardware, software, programming tools and documentation necessary to modify the fire alarm system on site. Modification includes addition and deletion of devices, circuits, zones and changes to system operation and custom label changes for devices or zones. The system structure and software shall place no limit on the type or extent of software modifications on-site. Modification of software shall not require power-down of the system or loss of system fire protection while modifications are being made.

E. Certifications

1. Together with the shop drawing submittal, submit a certification from the major equipment manufacturer indicating that the proposed supervisor of the installation and the proposed performer of contract maintenance is an authorized representative of the major equipment manufacturer. Include names and addresses in the certification.

1.02 MANUFACTURERS

A. Acceptable manufacturers are:

1. Notifier
2. Edwards
3. Siemens

B. The acceptable manufacturers systems listed in 1.02 A, shall be installed by the authorized local factory dealer/representative for that product. The factory dealer representative shall hold a current low voltage contractor's license.

Any interested parties shall submit a company resume showing years in business, certification stating that he is an authorized representative for the manufacturer of the equipment he is submitting for approval and that he maintains a fully equipped and stocked service shop and shall respond to service calls within 12 normal working hours, list of key personnel, copies of appropriate licenses and list of recently completed jobs during the normal prior approval period.

1.03 SUMMARY

A. This section of the specification includes the relocating, installation, and connection of an intelligent reporting, microprocessor controlled, addressable, fire detection and emergency alarm communication system. It shall include, but not be limited to, alarm initiating devices, alarm notification appliances, control panels, auxiliary control devices, annunciators, power supplies, and wiring as shown on the drawings and specified herein.

B. The fire alarm shall comply with requirements of NFPA Standard 72 for Fire Alarm Control Unit except as modified and supplemented by this specification. The system shall be electrically supervised and monitor the integrity of all conductors.

C. The system shall be an active/interrogative type system where each addressable device is repetitively scanned, causing a signal to be transmitted to the main Fire Alarm Control Unit (FACU) indicating that the device and its associated circuit wiring is functional. Loss of this signal at the main FACU shall result in a trouble indication as specified hereinafter for the particular input.

D. The facility shall have an Emergency Voice/Alarm Communication System (EVACS). Digitally stored message sequences shall notify the building occupants that a fire or life safety condition has been reported. Message generator(s) shall be capable of automatically distributing up to eight (8) simultaneous, unique messages to appropriate audio zones within the facility based on the type and location of the initiating event. The Fire Command Center (FCC) shall also support Emergency manual voice announcement capability for both system wide or selected audio zones and shall include provisions for the system operator to override automatic messages system wide or in selected zones.

E. The system shall support additional, alternate Fire Command Centers, which shall be capable of simultaneous monitoring of all system events. Alternate Fire Command Centers shall also support an approved method of transferring the control functions to an alternate Fire Command Center where necessary.

F. Each designated zone shall transmit separate and different alarm, supervisory and trouble signals to the Fire Command Center (FCC) and designated personnel in other buildings at the site via a multiplex communication network.

G. The fire alarm system shall be manufactured by an ISO 9001 certified company and meet the requirements of BS EN9001: ANSI/ASQC Q9001-1994

H. The system and its components shall be Underwriters Laboratories, Inc. listed under the appropriate UL testing standard as listed herein for fire alarm applications and the installation shall comply with the UL listing.

I. The installing company shall employ NICET (minimum Level II Fire Alarm Systems) technicians on site to guide the final checkout and to ensure the systems integrity.

J. System Programming:

1. Ability to program the system via the local user interface.

2. The system shall be capable of off-line/on-line programming by the manufacturers programming utility.

K. Provide a cloud base connected life safety platform with the ability to remotely monitor the buildings fire system and capable of providing system diagnostics with full detail reports on annual test and inspections from a web-based server or mobile device application. The software shall also expand to allow for future offerings and provide dedicated account access to facility users and service personal.

L. The system shall automatically track NFPA 72 installation and testing requirements for all fire system devices to ensure that every device is functionally tested upon installation and then periodically as required by Code. A gateway/hub shall be utilized to retrieve the system information using its native protocol and/or bar codes without the need of additional tools and accessories.

M. This section includes the minimum requirements for the following equipment:

- Main Fire Alarm Control Unit
- Relocation and reconnection to existing devices
- Addressable Main Power Supply
- Auxiliary Addressable Power Supply
- Power Supply Expander
- System Circuit Supervision
- CLSS Gateway
- Batteries and External Charger

1.04 SCOPE

A. This section of the specification includes the relocation, installation, and connection of an intelligent reporting, microprocessor controlled, addressable, fire detection and emergency alarm communication system. It shall include, but not be limited to, alarm initiating devices, alarm notification appliances, control panels, auxiliary control devices, annunciators, power supplies, amplifiers, and wiring as shown on the drawings and specified herein.

B. Basic Performance:

1. Alarm, trouble and supervisory signals from all intelligent reporting devices shall be encoded on NFPA Class <A, B or X>Signaling Line Circuits (SLC).

2. Initiation Device Circuits (IDC) shall be wired Class <A or B> as part of an addressable device connected by the SLC Circuit.
3. Notification Appliance Circuits (NAC) shall be wired Class <A or B>
4. On Class A configurations a single ground fault or open circuit on the system Signaling Line Circuit shall not cause system malfunction, loss of operating power or the ability to report an alarm.
5. Alarm signals arriving at the FACU shall not be lost following a primary power failure (or outage) until the alarm signal is processed and recorded.
6. Speaker circuits may be controlled by NAC outputs built into the amplifiers, which shall function as addressable points on the Digital Audio Loop.
7. Notification Appliance Circuits (NAC) speaker circuits shall be arranged such that there is a minimum of one speaker circuit per floor of the building or smoke zone whichever is greater.
8. Audio amplifiers and tone generating equipment shall be electrically supervised for normal and abnormal conditions.
9. Notification Appliance Circuits (NAC) speaker circuits and control equipment shall be arranged such that loss of any one (1) speaker circuit will not cause the loss of any other speaker circuit in the system.
10. Speaker circuits shall be arranged such that there is a minimum of one speaker circuit per smoke zone.
11. Speaker circuits shall be electrically supervised for open and short circuit conditions. If a short circuit exists on a speaker circuit, it shall not be possible to activate that circuit.
12. Audio amplifiers and tone generating equipment shall be electrically supervised for abnormal conditions. Digital amplifiers shall provide built-in speaker circuits, field configurable as four Class B, two or four Class A circuits where necessary
13. Speaker circuits shall be <25 or 70V> VRMS Speaker circuits shall have 20% space capacity for future expansion or increased power output requirements.

1.05 GENERAL REQUIREMENTS

A. The alarm equipment and all wiring shall be installed and interconnected by a factory certified installer and placed in working order. The name of the manufacturer and serial or identification numbers shall appear on all major components. Electrical supervision of the system shall conform to provisions of Article 240. NFPA Standard 72. Corresponding parts of all similar type equipment units shall be interchangeable, and locks for all cabinets shall be keyed alike. All devices, equipment and combination

thereof shall be of the manufacturer's current production. All component parts of the system and the control unit shall be approved for the purpose intended. The stamp, label, seal or certificate of the Underwriter's Laboratories or the Factory Mutual Laboratories shall be considered as acceptable evidence of such approval.

B. Fire Alarm Subcontractor shall submit a certification stating that he is an authorized representative for the manufacturer of the equipment he is submitting for approval and that he maintains a fully equipped and stocked service shop and shall respond to service within 12 normal working hours.

C. Contractor shall include in base bid factoring training and certification of two employees of the Owner. Any electronic equipment such as laptops, etc., required to program system shall be provided.

D. Contractor shall inculde in base bid all necessary components at fire alarm control panel to provide for 20% spare capacity for future portables.

1.06 DRAWINGS AND MANUALS

A. Three copies of complete instructions for the operation, inspection, testing and maintenance of the system, including wiring diagrams and replacement parts list shall be furnished upon final acceptance of the system. Also provide all special tools that are necessary for the maintenance of the equipment and include one set of fuses for each type and size.

1.07 INSTALLATION

A. A qualified fire alarm technician shall install, adjust and test the equipment. The technician shall be qualified by training and experience in the installation and operation of the fire alarm system specified. The technician shall instruct operating personnel in the operation, adjustment and maintenance of the system. A statement signed by the person or persons instructed shall be supplied to the Architect prior to final operation.

B. Provide a written certification that the system is in complete and proper working order and in compliance with all codes.

1.08 SYSTEM OPERATION

A. When a fire alarm condition is detected and reported by one of the systems initiating devices, the following functions shall immediately occur:

1. The System Alarm shall flash on display.
2. A local piezo electric signal in the control panel shall sound.
3. The touchscreen LCD display shall indicate all information associated with the fire alarm condition, including the type of alarm point and its location within the protected premises.

4. Printing and history storage equipment shall log the information associated each new Fire Alarm Control Unit condition, along with time and date of occurrence.
5. All system output programs assigned via control-by-event interlock programming to be activated by the particular point in alarm shall be executed, and the associated system outputs (notification appliances and/or relays) shall be activated.
6. The audio portion of the system shall sound the proper audio signal to the appropriate zones.

B. The system shall operate from one 120 volt circuit.
C. Fire Alarm System shall be interlocked with range hood extinguishing system, such that when system is activated, general alarm is sounded and signal is sent to the annunciator. Provide control module to activate shunt trip breaker serving cooking equipment beneath hood.

1.09 GUARANTY

A. All work performed, and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of at least two (2) year from the date of acceptance. The full cost of maintenance, labor and materials required to correct any defect during this two-year period shall be included in the submittal bid.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Basis of Design Product: Subject to compliance with requirements, provide product indicated on drawings as manufactured by NOTIFIER; a Honeywell company. Acceptable equal manufacturers shall be by Edwards or Siemens.

2.02 EQUIPMENT AND MATERIAL, GENERAL

A. All equipment and components shall be new(unless noted otherwise on drawings), and the manufacturer's current model. The materials, appliances, equipment and devices shall be tested and listed by a nationally recognized approvals agency for use as part of a protected premises protective signaling (fire alarm) system. The authorized representative of the manufacturer of the major equipment, such as control panels, shall be responsible for the satisfactory installation of the complete system. The materials, equipment, and devices shall be tested to function with manufactures approved FACU via a cloud base life safety services system.

B. The system shall fully comply with commissioning and test and inspect reports as outline in NFPA-72. System test shall automatically retrieve the fire systems connected devices utilizing a gateway. In applications where a gateway is not applicable the systems peripheral devices shall be entered manually and/or by using barcodes.

C. All equipment and components shall be installed in strict compliance with each manufacturer's recommendations. Consult the manufacturer's installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc. before beginning system installation. Refer to the riser/connection diagram for all specific system installation/termination/wiring data.

D. All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.

2.03 CONDUIT AND WIRE

A. Conduit

1. Conduit shall be in accordance with The National Electrical Code (NEC), local and state requirements.
2. Where possible, all wiring shall be installed in conduit or raceway. Conduit fill shall not exceed 40 percent of interior cross-sectional area where three or more cables are contained within a single conduit.
3. Cable must be separated from any open conductors of Power, or Class 1 circuits, and shall not be placed in any conduit, junction box or raceway containing these conductors, as per NEC Article 760.
4. Wiring for 24-volt control, alarm notification, emergency communication and similar power-limited auxiliary functions may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals.
5. Conduit shall not enter the Fire Alarm Control Unit, or any other remotely mounted control panel equipment or backboxes, except where conduit entry is specified by the FACU manufacturer.
6. Conduit shall be 3/4-inch (19.1 mm) minimum.

B. System Wiring

1. Wiring shall be in accordance with local, state and national codes (e.g., NEC Article 760) and as recommended by the manufacturer of the fire alarm system. Number and size of conductors shall be as recommended by the fire alarm system manufacturer, but not less than 18 AWG (1.02 mm) for initiating device circuits, signaling line circuits, and notification appliance circuits.
2. All wire and cable shall be listed and/or approved by a recognized testing agency for use with a protective signaling system.
3. Wire and cable not installed in conduit shall have a fire resistance rating suitable for the installation as indicated in NFPA 70 (e.g., FPLR).
4. The system shall permit the use of IDC and NAC wiring in the same conduit with the multiplex communication loop.

5. All field wiring shall be completely supervised. In the event of a primary power failure, disconnected standby battery, removal of any internal modules, or any open circuits in the field wiring; a trouble signal will be activated until the system and its associated field wiring are restored to normal condition.
6. All analog voice speaker and analog telephone circuits shall use twisted/shielded pair to eliminate cross talk.

C. Terminal Boxes, Junction Boxes

1. All boxes and cabinets shall be UL listed for their intended purpose.

D. Initiating circuits shall be arranged to serve like categories (manual, smoke, waterflow). Mixed category circuitry shall not be permitted except on signaling line circuits connected to intelligent reporting devices.

E. The Fire Alarm Control Unit shall be connected to a separate dedicated branch circuit, maximum 20 amperes. This circuit shall be labeled at the main power distribution panel as FIRE ALARM. Fire Alarm Control Unit primary power wiring shall be 12 AWG. The control panel cabinet shall be grounded securely to either a cold-water pipe or grounding rod.

2.04 MAIN FIRE ALARM CONTROL UNIT

A. The main FACU Central Console is an existing NFS2 Notifier Panel.

B. In conjunction with intelligent Signaling Loop Modules the main FACU shall perform the following functions:

1. Supervise and monitor all intelligent addressable detectors and monitor modules connected to the system for normal, trouble and alarm conditions.
2. Supervise all initiating signaling and notification circuits throughout the facility by way of connection to addressable monitor and control modules.
3. Detect the activation of any initiating device and the location of the alarm condition. Operate all notification appliances and auxiliary devices as programmed. In the event of CPU failure, all SLC loop modules shall fallback to local mode. Such local mode shall treat the corresponding SLC loop control modules and associated detection devices as conventional two-wire operation. Any activation of a detector in this mode shall automatically activate associated Notification Appliance Circuits.
4. Visually and audibly annunciate any trouble, supervisory, security or fire or CO (Carbon Monoxide) alarm condition on operator's terminals, panel display, and annunciators.
5. When a fire alarm condition is detected and reported by one of the systems initiating devices or appliances, the following functions shall immediately occur:

a. The system alarm shall flash on the display.

b. A local piezo-electric audible device in the control panel shall sound a distinctive signal.
c. The touchscreen LCD display shall indicate all information associated with the fire alarm condition, including the type of alarm point and its location within the protected premises.
d. Printing and history storage equipment shall log and print the event information along with a time and date stamp.
e. All system outputs assigned via preprogrammed equations for a particular point in alarm shall be executed, and the associated system outputs (alarm notification appliances and/or relays) shall be activated.
f. When a trouble condition is detected and reported by one of the systems initiating devices or appliances, the following functions shall immediately occur:

1) The system trouble shall flash on the display.
2) A local piezo-electric audible device in the control panel shall sound a distinctive signal.
3) The touchscreen LCD display shall indicate all information associated with the trouble condition, including the type of trouble point and its location within the protected premises.
4) Printing and history storage equipment shall log and print the event information along with a time and date stamp.
5) All system outputs assigned via preprogrammed equations for a particular point in trouble shall be executed, and the associated system outputs (trouble notification appliances and/or relays) shall be activated.

6. When a supervisory, security alarm or pre-alarm condition is detected by an initiating devices or appliance, the following functions shall immediately occur:

a. The system trouble shall flash on the display.
b. A local piezo-electric audible device in the control panel shall sound a distinctive signal.
c. The touchscreen LCD display shall indicate all information associated with the supervisory condition, including the type of trouble point and its location within the protected premises.
d. Printing and history storage equipment shall log and print the event information along with a time and date stamp.
e. All system outputs assigned via preprogrammed equations for a particular point in trouble shall be executed, and the associated system outputs (notification appliances and/or relays) shall be activated.

C. Operator Control

1. Acknowledge
a. Activation of the control panel acknowledge selection in response to new alarms and/or troubles shall silence the local panel

piezo electric signal and change the alarm and trouble indicators from flashing mode to steady-ON mode. If multiple alarm or trouble conditions exist, selection of acknowledge shall advance the LCD display to the next alarm or trouble condition. In addition, the FACU shall support Block Acknowledge to allow multiple trouble conditions to be acknowledged with a single tap on the touchscreen button

b. Tapping on the Acknowledge button shall also silence all remote annunciator piezo sounders.

2. Signal Silence

a. Tapping of the Signal Silence button shall cause all programmed alarm notification appliances and relays to return to the normal condition. The selection of notification circuits and relays that are silenceable by this switch shall be fully field programmable within the confines of all applicable standards. The FACU software shall include silence inhibit and auto-silence timers.

3. Drill Switch

a. Selection of the Drill mode shall activate all programmed notification appliance circuits. The drill function shall latch until the panel is silenced or reset.

4. System Reset

a. Tapping the System Reset button shall cause all electronically latched initiating devices to return to their normal condition. Initiating devices shall re-report if active. Active notification appliance circuits shall not silence upon Reset. Systems that de-activate and subsequently re-activate notification appliance circuits shall not be considered equal. All programmed Control-By-Event equations shall be re-evaluated after the reset sequence is complete if the initiating condition has cleared. Non-latching trouble conditions shall not clear and re-report upon reset.

5. Lamp Test

a. Tapping the Lamp Test button shall activate all local system LED’s as well as illuminate the LCD display.

6. About Screen

a. The system shall provide an “About Screen” that offers panel software and hardware version as well as provide a means to upgrade the software for service personnel.

7. Scrolling

    a. Provide a programmable Alert bar such that Tapping on an active events category in the Alert Bar shall vector the display to those categorized events including but not limited to, Fire Alarm, Supervisory, Trouble, CO Alarm and Disable. Tapping on the display and dragging in a upward or downward motion shall scroll through active events.

8. Printing

    a. When connected to a supported printer the panel shall print live events. History may also be exported to USB drive.

D. Central Processing Unit

1. The Central Processing Unit is existing, to be relocated.

E. System Display

1. The system display is existing, to be relocated.

F. Loop (Signaling Line Circuit) Control Module

1. The Loop Control Module shall monitor and control a minimum of 318 intelligent addressable devices. This includes 159 intelligent detectors (Photoelectric, or Thermal) and 159 monitor or control modules.
2. The Loop Control Module shall contain its own microprocessor and shall be capable of operating in a local/ mode (any addressable device input shall be capable of activating any or all addressable device outputs) in the unlikely event of a failure in the main CPU.
3. The Loop Control Module shall provide power and communicate with all intelligent addressable detectors and modules on a single pair of wires. This SLC Loop shall be capable of operating as a NFPA Class A, B or X circuit.
4. The SLC interface board shall be able to drive a twisted unshielded circuit up to 12,500 feet in length. The SLC Interface shall also be capable of driving an NFPA Class A, no twist, no shield circuit for limited distances determined by the manufacturer. In addition, SLC wiring shall meet the listing requirements for it to exit the building or structure. "T"-tapping shall be allowed in either case.
5. The SLC interface board shall receive analog or digital information from all intelligent detectors and shall process this information to determine whether normal, alarm, or trouble conditions exist for that particular device. Each SLC Loop shall be isolated and equipped to annunciate an Earth Fault condition. The SLC interface board software shall include software to automatically maintain the detector's desired sensitivity level by adjusting for the effects of environmental factors, including the accumulation of dust in each detector. The analog

information may also be used for automatic detector testing and the automatic determination of detector maintenance requirements.

G. Enclosures

1. The control panel shall be housed in a UL-listed cabinet suitable for surface or semi-flush mounting. The cabinet and front shall be corrosion protected, given a rust-resistant prime coat, and manufacturer's standard finish.
2. The back box and door shall be constructed of 0.060 steel with provisions for electrical conduit connections into the sides and top.
3. The door shall provide a key lock and include a transparent opening for viewing all indicators. For convenience, the door shall have the ability to be hinged on either the right or left-hand side and dress plates can be installed and removed without requiring any specialized tools.
4. The control unit shall be modular in structure for ease of installation, maintenance, and future expansion.
5. The FACU shall have a modular dress panel and door design with interchangeable door hinge locations.

H. Digital Voice Command Center
1. The Digital Voice Command is existing, to be relocated.

I. Addressable Main Power Supply

1. The Addressable Main Power Supply shall be universal input and shall accept either 120/240 VAC, 50/60 Hz, without any modifications and shall provide all necessary power for the FACU.
2. The Addressable Main Power Supply shall provide the required power to the CPU using a switching 24 VDC regulator and shall incorporate a battery charger for 24 hours of standby power using dual-rate charging techniques for fast battery recharge.
3. The Addressable Main Power Supply shall provide a battery charger for 24 hours of standby using dual-rate charging techniques for fast battery recharge. The supply shall be capable of charging batteries ranging in capacity from 7-100 amp-hours within a 48-hour period.
4. The Addressable Main Power Supply shall provide a very low frequency sweep earth detect circuit, capable of detecting earth faults.
5. The Addressable Main Power Supply shall be power-limited per UL864 requirements.
6. Up to three addressable main power supplies may be added within the same FACU to expand power capacity
7. Each addressable main power supply shall provide a minimum of 4 programmable Notification appliance circuits (NAC)
8. Power distribution of Each addressable main power supply can be customizable to provide system power, NAC, power, Auxillary power and battery charging

J. Auxiliary Addressable Power Supply

1. The auxiliary addressable power supply is a remote 24 VDC power supply used to power Notification Devices and field devices that require regulated 24VDC power. The power supply shall also include and charge backup batteries.
2. The addressable power supply for the fire alarm system shall provide up a minimum of 6.0 amps of 24-volt DC regulated power for Notification Appliance Circuit (NAC) power or 5 amps of 24-volt DC general power. The power supply shall have an additional .5 amp of 24 VDC auxiliary power for use within the same cabinet as the power supply. It shall include an integral charger designed to charge 7.0 - 25.0-amp hour batteries.
3. The addressable power supply shall provide four individually addressable Notification Appliance Circuits that may be configured as two Class "A" and two Class "B" or four Class "B" only circuits. All circuits shall be power-limited per UL 864 requirements.
4. The addressable power supply shall provide built-in synchronization for certain Notification Appliances on each circuit without the need for additional synchronization modules. The power supply's output circuits shall be individually selected for synchronization. A single addressable power supply shall be capable of supporting both synchronized and non-synchronized Notification Devices at the same time.
5. The addressable power supply shall operate on 120 or 240 VAC, 50/60 Hz.
6. The interface to the power supply from the Fire Alarm Control Unit (FACU) shall be via the Signaling Line Circuit (SLC) or other multiplexed means Power supplies that do not use an intelligent interface are not suitable substitutes. The required wiring from the FACU to the addressable power supply shall be a single unshielded twisted pair wire. Data on the SLC shall be transmitted between 24 VDC, 5 VDC and 0 VDC at approximately 3.33k baud.
7. The addressable power supply shall supervise for battery charging failure, AC power loss, power brownout, battery failure, NAC loss, and optional ground fault detection. In the event of a trouble condition, the addressable power supply shall report the incident and the applicable address to the FACU via the SLC.
8. The addressable power supply shall have an AC Power Loss Delay option. If this option is utilized and the addressable power supply experiences an AC power loss, reporting of the incident to the FACU will be delayed. A delay time of eight or sixteen hours shall be Dip-switch selected.
9. The addressable power supply shall have an option for Canadian Trouble Reporting and this option shall be Dip-switch selectable.
10. The addressable power supply mounts in either the FACU backbox or its own dedicated surface mounted backbox with cover.
11. Each of the power supply's four output circuits shall be DIP-switch selected for Notification Appliance Circuit or General Purpose 24 VDC power. Any output circuit shall be able to provide up to 2.5 amps of 24 VDC power.
12. The addressable power supply's output circuits shall be individually supervised when they are selected to be either a Notification Appliance Circuit when wired Class "A" or by the use of and end-of-line resistor. When the power supply's output circuit is selected as General 24VDC power, the circuit shall be individually supervised when an end-of-line relay is used.

13. When selected for Notification Appliance Circuits, the output circuits shall be individually DIP-switch selectable for Steady, March Time, Dual Stage or Temporal.
14. When selected as a Notification Appliance Circuit, the output circuits of the addressable power supply shall have the option to be coded by the use of a universal zone coder.
15. The addressable power supply shall interface and synchronize with other power supplies of the same type. The required wiring to interface multiple addressable power supplies shall be a single unshielded, twisted pair wire.
16. An individual or multiple interfaced addressable power supplies shall have the option to use an external charger for battery charging. Interfaced power supplies shall have the option to share backup battery power.

K. Power Supply Expander

The PSE is a device designed for use as either a remote 24-volt power supply or used to power Notification Appliances.

1. The PSE shall offer up to 6.0 amps or 10 amps of regulated 24volt power. It shall include an integral charger designed to charge up to 33-amp hour batteries.
2. The Power Supply Expanders shall have two or three fully isolated input triggers configurable, pairing any input with any output. The input trigger shall be a Notification Appliance Circuit (from the Fire Alarm Control Unit) or a control module. Five or Seven outputs shall be available for connection to the Notification devices Class B or Class A (without losing any output using converter card)
3. UL-Listed NAC synchronization using System Sensor, Wheelock, Gentex or AMSECO appliances. Sync signal maybe triggered from FACU NAC or remote sync outputs allowing cascading or daisy chain multiple power supplies.
4. The PSE shall include trouble history modes for diagnostic support. PSE shall include individual NAC power and trouble LEDs for diagnostic efficiency.
5. The Power Supply Expanders shall include the ability to delay the AC fail delay per NFPA requirements.
6. Self-Contained in compact, locking cabinet constructed of heavy gauge steel with a corrosion-resistant powder coat chip and scratch-resistant finish. Cabinet shall consist of 10 double knockouts and a removable door for ease of installation and wiring.
7. The PSE shall be capable of utilizing a wide range of end of line supervision values (normal 2K- 27K ohms).
8. The PSE shall be completely configurable via onboard dip switches, with no extra software required.

L. System Circuit Supervision

1. The FACU shall supervise all circuits to intelligent devices, transponders, annunciators and peripheral equipment and annunciate loss of communication with these devices. The CPU shall continuously scan above devices for proper system operation and upon loss of response from a device shall sound an

audible trouble, indicate which device or devices are not responding and print the information in the history buffer and on the printer.
2. Transponders that lose communication with the CPU shall sound an audible trouble and light an LED indicating loss of communications.
3. Sprinkler system valves, standpipe control valves, PIV, and main gate valves shall be supervised for off-normal position.
4. All speaker and emergency phone circuits shall be supervised for opens and shorts. Each transponder speaker and emergency phone circuit shall have an individual ON/OFF indication (green LED).

M. Field Wiring Terminal Blocks
All wiring terminal blocks shall be the plug-in/removable type and shall be capable of terminating up to 12 AWG wire. Terminal blocks that are permanently fixed to the PC board are not acceptable.

N. Audio Amplifiers

1. The Audio Amplifiers will provide Audio Power (@25 Volts RMS & 70V RMS) for distribution to speaker circuits.
2. Multiple audio amplifiers may be mounted in a single enclosure, either to supply incremental audio power, or to function as an automatically switched backup amplifier(s).
3. The audio amplifier shall provide the following built-in controls:

    a. Amplifier Address Selection Switches
    b. Signal Silence of communication loss annunciation Reset
    c. Level adjustment for background music
    d. Enable/Disable for Earth Fault detection on DAP A
    e. Switch for 2-wire/4-wire FFT riser

4. Adjustment of the correct audio level for the amplifier shall not require any special tools or test equipment.
5. Includes audio input and amplified output supervision, back up input, and automatic switch over function, (if primary amplifier should fail).
6. System shall be capable of backing up digital amplifiers.
7. One-to-one backup shall be provided by either a plug-in amplifier card or a designated backup amplifier of identical model as the primary amplifier.
8. One designated backup amplifier shall be capable of backing up multiple primary amplifiers mounted in the same or adjacent cabinets.
9. Multi-channel operation from a single amplifier shall be supported by the addition of an optional plug-in amplifier card.

O. Audio Message Generator (Prerecorded Voice)/Speaker Control:

1. Each initiating zone or intelligent device shall interface with an emergency voice communication system capable of transmitting a prerecorded voice message to all speakers in the building.
2. Actuation of any alarm initiating device shall cause a prerecorded message to sound over the speakers. The message shall be repeated four (4) times. Pre- and post-message tones shall be supported.
3. A built-in microphone shall be provided to allow paging through speaker circuits.
4. System paging from emergency telephone circuits shall be supported.
5. The audio message generator shall have the following indicators and controls to allow for proper operator understanding and control:

    a. Lamp Test
    b. Trouble
    c. Off-Line Trouble
    d. Microphone Trouble
    e. Phone Trouble
    f. Busy/Wait
    g. Page Inhibited
    h. Post Announcement Tone

6. Emergency Two-Way Telephone Control Switches/Indicators:

    a. The emergency telephone circuit control panel shall include visual indication of active and trouble status for each telephone circuit in the system.
    b. The telephone circuit control panel shall include switches to manually activate or deactivate each telephone circuit in the system.

P. Controls with associated LED Indicators

1. Speaker Switches/Indicators

    a. The speaker circuit control switches/indicators shall include visual indication of active and trouble status for each speaker circuit in the system.
    b. The speaker circuit control panel shall include switches to manually activate or deactivate each speaker circuit in the system.

Q. Remote Transmissions

1. Provide local energy or polarity reversal or trip circuits as required.
2. The system shall be capable of operating a polarity reversal or local energy or fire alarm transmitter for automatically transmitting fire information to the fire department.
3. Provide capability and equipment for transmission of zone alarm and trouble signals to remote operator's terminals, system printers and annunciators.

4. Transmitters shall be compatible with the systems and equipment they are connected to such as timing, operation and other required features.

R. System Expansion

1. Design the main FACU and required components so that the system can be expanded in the future (to include the addition of twenty percent more circuits or zones) without disruption or replacement of the existing control panel. This shall include hardware capacity, software capacity and cabinet space.

S. Field Programming

1. The system shall be programmable, configurable and expandable in the field using the programming utility provided by the manufacturer.
2. All field defined programs shall be stored in non-volatile memory.
3. Five levels of password protection shall be provided in addition to a key-lock cabinet. Building Maintenance User, Technician User, Admin User, Master User and up to 50 usernames and passwords. Each role has default permissions that can be customized. Only the master password shall allow access to password change screens.
4. The system shall enforce the change from factory default password and it shall be a minimum of Eight (8) characters with a maximum of 16
5. The system programming shall be "backed" up via an upload/download program and stored on compatible removable media and also provide means to backup the file to the cloud.
   A system back-up disk shall be completed and given in duplicate to the building owner and/or operator upon completion of the final inspection. The program that performs this function shall be "non-proprietary", in that, it shall be possible to forward it to the building owner/operator upon his or her request.
6. The installer's field programming and hardware shall be functionally tested on a computer against known parameters/norms which are established by the FACU manufacturer. A software program shall test Input-to-Output correlations, device Type ID associations, point associations, time equations, etc. This test shall be performed on windowscompatible PC with a verification software package. A system generated report of the test results shall be provided to the engineer(s) on record.

T. Specific System Operations

1. Smoke Detector Sensitivity Adjust: Means shall be provided for adjusting the sensitivity of any or all analog intelligent smoke detectors in the system from the system keypad or from the keyboard of the video terminal. Sensitivity range shall be within the allowed UL window.
2. Alarm Verification: Each of the Intelligent Addressable Smoke Detectors in the system may be independently selected and enabled to be an alarm verified detector. The alarm verification function shall be programmable from 5 to 50

seconds and each detector shall be able to be selected for verification during the field programming of the system or any time after system turn-on. Alarm verification shall not require any additional hardware to be added to the control panel. The FACU shall keep a count of the number of times that each detector has entered the verification cycle. These counters may be displayed and reset by the proper operator commands.

U. System Point Operations

1. Any addressable device in the system shall have the capability to be enabled or disabled through the system display.
2. System output points shall be capable of being turned on or off from the system display
3. Point Read: The system shall be able to display the following point status diagnostic functions without the need for peripheral equipment. Each point shall be annunciated for the parameters listed:

    a. Device Status.
    b. Device Type.
    c. Custom Device Label.
    d. Software Zone Label.
    e. Device Zone Assignments.
    f. Analog Detector Sensitivity.
    g. All Program Parameters.

4. System History Recording and Reporting: The Fire Alarm Control Unit shall contain a history buffer that will be capable of storing up to 10000 system events. Each of these events will be stored, with time and date stamp, until an operator requests that the contents be either displayed or printed. The contents of the history buffer may be manually reviewed; one event at a time, and the actual number of activations may also be displayed and or printed. History events shall include all alarms, troubles, operator actions, and programming entries.
5. The history buffer shall use non-volatile memory. Systems which use volatile memory for history storage are not acceptable.
6. Automatic Detector Maintenance Alert: The Fire Alarm Control Unit shall automatically interrogate each intelligent system detector and shall analyze the detector responses over a period of time.
7. If any intelligent detector in the system responds with a reading that is below or above normal limits, then the system will enter the trouble mode, and the particular Intelligent Detector will be annunciated on the system display and printed on the optional system printer. This feature shall in no way inhibit the receipt of alarm conditions in the system, nor shall it require any special hardware, special tools or computer expertise to perform.
8. The system shall include the ability (programmable) to indicate a "pre-alarm" condition. This will be used to alert maintenance personal when a detector is at 80% of its alarm threshold in a 60 second period.

2.05 CLOUD BASED REPORTING AND MONITORING REQUIREMENTS

A. All equipment, components and software shall be new and meet manufacturer's current model. The materials, equipment, and devices shall be tested to function with manufacture's approved FACU via a cloud-based life safety services system.

B. The system shall fully comply with commissioning and test and inspect reports as outlined in NFPA-72. System test shall automatically retrieve the fire systems connected devices utilizing a gateway. In applications where a gateway is not applicable the systems peripheral devices shall be imported from the panel programming file, entered manually and/or by using barcodes.

C. Connected Life Safety Services Software Platform:

1. The software shall meet all the requirements outline in the System Maintenance and Analysis Reporting section of this specification.

    a. System shall be compatible with IOS and Android mobile functionality and have web-based access with Windows and MAC based platforms without the need to install software on a dedicated network server.
    b. Functions through the mobile App and Web access should have all the following features:

        1. Device count per building
        2. Event log on App and Web access
        3. Control and reporting via Mobile App
        4. Automatic data input
        5. Automatic report generation
        6. Cause & Effect testing
        7. Ability to change panel device labels

2. The system shall support an IP based gateway to enable the panel or local Noti-Fire-Net to be connected to an ONYX-Works workstation via the Inter-net or Intranet. This gateway shall also support the ability to integrate the system to an interactive firefighter's display.

D. Permanently installed Fixed Gateway: The system shall be capable of being interfaced with a fixed gateway to integrate with 3rd Party Service Management Software. E. CLSS Gateway:

1. Provide a CLSS gateway for connection to a NOTIFIER fire system panel, serving as an interface between the FACU, Cloud and peripheral devices. The CLSS gateway shall be capable of reading the connected device system data

base from a single or network of panels and shall transmit the data to the Connected Life Safety Services (CLSS) cloud.

2. Equipment standard features shall allow Blue Tooth mobile paring for gateway configuration and control capability.
3. Connection to NOTIFIER INSPIRE N16 series fire system panels utilizing Universal Protocol Ports via NUP
4. Provide Nominal Voltage consumption of 12V to 32V DC from the FACU or an external power supply.
5. The CLSS gateway shall allow for alarm transmission to a central station via IP and CELLULAR (LTE).
6. The system shall support the ability to generate automated commissioning reports or test and inspection reports for installation or test & inspection personnel via the Connected Life Safety Service (CLSS) platform. The reports should be stored in cloud, enabling appropriate stakeholders to retrieve test and inspect report immediately after completion of the system commissioning or test and inspection.
7. Inspection report shall indicate the method in which the device disposition was captured. Either by event received from a connected gateway, barcode scan, or manual user entry.
8. The CLSS platform shall support the ability to automatically capture every addressable device connected to the system ensuring that each addressable device is accounted for and properly tested. CLSS shall also support importing any non-addressable devices associated with the system to ensure all system devices are accounted for and properly tested.
9. For self-testing devices CLSS shall identity any issues associated with the integrity or the ability for the smoke detector to properly detect smoke such as a dust cap not being removed or someone tampering with the detector by obstructing the smoke detector chamber.
10. The CLSS Gateway shall support the ability to send events from a single Notifier N16 panel or a network of up to 16 panels using standard BACnet communications protocol
11. The CLSS Gateway shall support the ability to send events from single Notifier N16 panel or a network of up to 10 panels using standard MODbus communications protocol

2.06 SYSTEM COMPONENTS

A. Speakers are existing and to be reconnected.

B. Audible/Visual Combination Devices are existing and to be reconnected.

C. Strobe lights are existing and to be reconnected.

D. Manual Fire Alarm Stations are existing and to be reconnected.

E. Intelligent Duct Smoke Detector are existing and to be reconnected.

F. Waterflow Monitoring are existing and to be reconnected.

G. LED Annunciator Control Display are existing and to be reconnected.

H. Remote LCD annunciator are existing and to be reconnected.

2.07 SYSTEM COMPONENTS – ADDRESSABLE DEVICES

A. Addressable Devices – General

1. Addressable devices shall provide an address-setting means using rotary decimal switches. Addressable devices that require the address be programmed using a programming utility are not an allowable substitute.
2. Addressable devices shall use simple to install and maintain decade (numbered 0 to 15) type address switches. Devices which use a binary address or special tools for setting the device address, such as a dip switch are not an allowable substitute.
3. Detectors shall be Analog and Addressable and shall connect to the Fire Alarm Control Unit's Signaling Line Circuits.
4. Addressable smoke and thermal detectors shall provide dual (2) status LEDs. Both LEDs shall flash under normal conditions, indicating that the detector is operational and in regular communication with the control panel, and both LEDs shall be placed into steady illumination by the control panel, indicating that an alarm condition has been detected. If required, the flashing mode operation of the detector LEDs can be programmed via the fire control panel program.
5. The Fire Alarm Control Unit shall permit detector sensitivity adjustment through field programming of the system. Sensitivity can be automatically adjusted by the panel on a time-of-day basis.
6. Using software in the FACU, detectors shall automatically compensate for dust accumulation and other slow environmental changes that may affect their performance. The detectors shall be listed by UL as meeting the calibrated sensitivity test requirements of NFPA Standard 72, Chapter 7.
7. The detectors shall be ceiling mounted and shall include a separate twist-lock base which includes a tamper proof feature.
8. The following bases and auxiliary functions shall be available:

    a. Sounder base rated at 85 Db(high) and 75 Db (low)
    b. Form-C Relay base
    c. Isolator base
    d. Where required a Low Frequency 520 HZ

9. The detectors shall provide a test means whereby they will simulate an alarm condition and report that condition to the control panel. Such a test may be

initiated at the detector itself (by activating a magnetic switch) or initiated remotely on command from the control panel.

10. Detectors shall also store an internal identifying type code that the control panel shall use to identify the type of device (example: Duct, PHOTO, THERMAL).

Self-testing initiating devices shall be capable of providing both a functional test and smoke entry test using a self-test function. The detector shall transmit a wireless beacon activated only during self-test mode designed to communicate with the CLSS app to prove successful completion of a visual inspection.

1. Detector Sensitivity Level

    - Standard = 8% obs/m (2.5% obs/ft)

2. The detector shall have a test port per detection chamber to facilitate centralized smoke test under user control.

B. Addressable Control Module

1. Addressable control modules shall provide supervised monitoring of wiring to load devices that require an external power supply to operate, such as horns, strobes, or bells. It shall be capable of Class B (Style Y) and Class A (Style Z) supervision. Upon command from the control panel, the control module shall be able to disconnect the supervision and connect the external power supply across the load device. The disconnection of the supervision shall provide verification to the panel that the control relay state changed. The external power supply shall always be relay isolated from the communication loop. The control module shall transmit full analog measurement of the supervised wiring back to the panel and can be used to detect impedance changes or other special test functions.
2. The modules shall provide address-setting means on the module using rotary switches. Because of the possibility of installation error, systems that use binary jumpers or DIP switches to set the module address are not acceptable. The modules shall also store an internal identifying code that the control panel shall use to identify the type of detector. Systems that require a special programmer to set the module address (including temporary connection at the panel) are labor intensive and not acceptable. Each module occupies any one-off at least 99 possible addresses on the signaling line circuit (SLC) loop. It responds to regular polls from the system and reports its type and status. The module shall have an LED that is controlled by the panel to indicate module status. Coded signals, transmitted from the panel, can cause the LED to blink, latch on, or latch off. Refer to the control panel technical documentation for module LED status operation.
3. The module shall mount in a standard 4-inch square, 2-1/8" deep electrical box, surface mounted backbox listed, or compatible duct smoke detector housing. The notification appliance circuit (NAC) shall wire in a Class B (Style Y) or Class A (Style Z) fashion. Each control module shall support up to 1 amp of inductive or 2 amps of resistive audible/visual signals. Audio/visual power shall be provided by

a separate supervised power loop from the main fire alarm control panel or from a supervised, UL listed remote power supply. The module shall use SEMS screws for easy wiring. Wiring terminals shall be easily accessible for troubleshooting while installed.

C. Addressable Relay Module

1. Addressable relay modules shall allow a compatible control panel to switch discrete contacts by code command. The relay module shall provide two isolated sets of Form-C contacts, which operate as a double pole double throw switch. The module shall allow the control panel to switch these contacts on command. The module shall not provide supervision for the notification appliance circuit (NAC). Module shall have both normally open and normally closed connections available for field wiring.
2. The modules shall provide address-setting means on the module using rotary switches. Because of the possibility of installation error, systems that use binary jumpers or dipswitches to set the module address are not acceptable. The modules shall also store an internal identifying code that the control panel shall use to identify the type of module. Systems that require a special programmer to set the module address (including temporary connection at the panel) are labor intensive and not acceptable. Each module occupies any one of at least 99 possible addresses on the SLC loop. It responds to regular polls from the system and reports its type and status. The module shall have an LED that is controlled by the panel to indicate module status. Coded signals, transmitted from the panel, can cause the LED to blink, latch on, or latch off.
3. The module shall mount in a standard 4-inch square, 2-1/8" deep electrical box or to a surface mounted backbox. The relay module contact ratings shall support up to 1 amp/30 VDC of inductive load or 2 amps/30VDC (coded) of resistive load (up to 3 amps in noncoded applications). The relay coil shall be magnetically latched to minimize wiring connection requirements and to ensure that 100% of all auxiliary relays may be energized simultaneously on the same pair of wires. The module will use SEMS screws for easy wiring. Wiring terminals shall be easily accessible for troubleshooting while installed.

D. Addressable Releasing Control Module

1. An addressable Flash-Scan releasing module shall be available to supervise and control compatible releasing agent solenoids.
2. The module shall operate on a redundant protocol for added protection.
3. The module shall be configurable for Class <A or B> and support one 24 volt or two 12volt solenoids.

E. Serially Connected Annunciator Requirements

1. The annunciator shall communicate to the Fire Alarm Control Unit via an EIA 485 (multidrop) two-wire communications loop. The system shall support two 6,000 ft. EIA485 wire runs. Up to 32 annunciators, each configured up to 96 points, may

be connected to the connection, for a system capacity of 3,072 points of annunciation.
2. An EIA-485 repeater shall be available to extend the EIA-485 wire distance in 3,000 ft. increments. An optional version shall allow the EIA-485 circuit to be transmitted over Fiber optics. The repeater shall be UL864 approved.
3. Each annunciator shall provide up to 96 alarm and 97 trouble indications using a long-life programmable color LED's. Up to 96 control switches shall also be available for the control of Fire Alarm Control Unit functions. The annunciator will also have an "ONLINE" LED, local piezo sounder, local acknowledge and lamp test switch, and custom zone/function identification labels.
4. The annunciator may be field configured to operate as a "Fan Control Annunciator". When configured as "Fan Control," the annunciator may be used to manually control fan or damper operation and can be set to override automatic commands to all fans/dampers programmed to the annunciator.

2.08 BATTERIES AND EXTERNAL CHARGER (Provide New)

A. Battery

1. Shall be 12 volt, Gel-Cell type.
2. Battery shall have sufficient capacity to power the fire alarm system for not less than <four/twenty-four> hours plus <five/fifteen> minutes of alarm upon a normal AC power failure.
3. The batteries are to be completely maintenance free. No liquids are required. Fluid level checks refilling, spills and leakage shall not be required.

B. External Battery Charger

1. Shall be completely automatic, with constant potential charger maintaining the battery fully charged under all service conditions. Charger shall operate from a 120/240-volt 50/60 hertz source.
2. Shall be rated for fully charging a completely discharged battery within 48 hours while simultaneously supplying any loads connected to the battery.
3. Shall have protection to prevent discharge through the charger.
4. Shall have protection for overloads and short circuits on both AC and DC sides.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation shall be in accordance with the NEC, NFPA 72, local and state codes, as shown on the drawings, and as recommended by the major equipment manufacturer.

B. All conduit, junction boxes, conduit supports, and hangers shall be concealed in finished areas and may be exposed in unfinished areas. Smoke detectors shall not be installed prior to the

C. system programming and test period. If construction is ongoing during this period, measures shall be taken to protect smoke detectors from contamination and physical damage.

D. All fire detection and alarm system devices, control panels and remote annunciators shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas.

E. Manual Pull Stations shall be suitable for surface mounting or semi-flush mounting as shown on the plans, and shall be installed not less than 42 inches, nor more than 48 inches above the finished floor.

3.02 TYPICAL OPERATION

A. Actuation of any manual station, smoke detector heat detector or water flow switch shall cause the following operations to occur unless otherwise specified:

1. Activate all programmed speaker circuits.
2. Actuate all strobe units until the panel is reset.
3. Light the associated indicators corresponding to active speaker circuits.
4. Release all magnetic door holders to doors to adjacent zones on the floor from that the alarm was initiated.
5. Return all elevators to the primary or alternate floor of egress.
6. A smoke detector in any elevator lobby shall, in addition to the above functions, return all elevators to the primary or alternate floor of egress.
7. Smoke detectors in the elevator machine room or top of hoist-way shall return all elevators in to the <primary/ alternate> floor. Smoke detectors or heat detectors installed to shut down elevator power shall do so in accordance with ANSI A17.1 requirements and be coordinated with the electrical contractor.
8. Duct type smoke detectors shall, in addition to the above functions shut down the ventilation system or close associated control dampers as appropriate.
9. Activation of any sprinkler system low pressure switch or valve tamper switch shall cause a system supervisory alarm indication.

3.03 TEST AND INSPECTION REPORT

A. Only a factory-authorized service representative trained shall be allowed to test and inspect components, assemblies, and equipment installations, including connections.

B. All test and inspection shall be completed by using the CLSS platform.

C. Perform the following tests and inspections via the mobile app:

1. Visual Inspection: Conduct visual inspection prior to testing.

    a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Documentation" chapter in NFPA 72.
    b. Comply with the "Visual Inspection" table in the "Inspection" section of the "Inspection, Testing, and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. Verification shall take place carrying out an automated self-testing process (without need of manual intervention or a smoke/ heat pole). The detectors shall be able to carry out the following;

    a. Functional test on heat or smoke
    b. Smoke entry test for smoke alarms
    c. Determine that the dust cover is in place during construction.
    d. Determine that the dust cover has been removed when the building becomes ready for occupation.
    e. Provide an automated summary report of above points.

3. The system will register real events from all initiating devices not in test mode after each test. Upon an alarm condition during the self-test process the system will be overwritten and initiate an alarm at the FACU.
4. System Testing: Comply with the "Testing" table in the "Testing" section of the "Inspection, Testing, and Maintenance" chapter in NFPA 72.
5. During inspection the software shall automatically comply and generate "Fire Alarm System Record of Completion" in the "Documentation" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing, and Maintenance" chapter in NFPA 72.

D. Annual Test and Inspection: One year after date of Substantial Completion, test fire alarm system complying with visual and testing inspection requirements in NFPA 72. A report shall be automatically be generated from the mobile app upon completion and provide to applicable parties.

3.04 SYSTEM TEST

A. Provide the service of a competent, factory-trained engineer or technician authorized by the manufacturer of the fire alarm equipment to technically supervise and participate during all of the adjustments and tests for the system.

B. Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation.

C. Close each sprinkler system flow valve and verify proper supervisory alarm at the FACU.

D. Open initiating device circuits and verify that the trouble signal actuates.

E. Open signaling line circuits and verify that the trouble signal actuates.

F. Open and short notification appliance circuits and verify that trouble signal actuates.

G. Ground initiating & Signaling device circuits and verify response of trouble signals.

H. Ground notification appliance circuits and verify response of trouble signals.

I. Check presence and audibility of tone at all alarm notification devices.

J. Check installation, supervision, &operation of intelligent smoke detectors during a walk test.

K. Each of the alarm conditions that the system is required to detect should be introduced on the system. Verify the proper receipt and the proper processing of the signal at the FACU and the correct activation of the control points.

L. When the system is equipped with optional features, the manufacturer's manual should be consulted to determine the proper testing procedures. This is intended to address such items as verifying controls performed by individually addressed or grouped devices, sensitivity monitoring, verification functionality and similar.

3.05 FINAL INSPECTION

At the final inspection a factory trained representative of the manufacturer of the major equipment shall demonstrate that the systems function properly in every respect.

3.06 INSTRUCTION

A. Provide instruction as required for operating the system. Hands-on demonstrations of the operation of all system components and the entire system including program changes and functions shall be provided.

B. The contractor and/or the systems manufacturer's representatives shall provide typewritten "Sequence of Operation." END OF SECTION

SECTION 27 0180
INTRUSION ALARM SYSTEM

1.01 SUBMITTALS

A. Submit shop drawings consisting of:

1. Manufacturer's published literature.
2. One line schematic of complete system.

1.02 MANUFACTURERS

A. Intrusion Alarm System manufacturers shall be as follows:

1. Ademco
2. Radionics
3. DSC

B. The acceptable manufacturers systems listed in 1.02 A, shall be installed by the authorized local factory dealer/representative for that product. The factory dealer representative shall hold a current low voltage contractor's license.

1.03 GENERAL

A. Furnish and install a complete intrusion alarm system consisting of passive infrared detectors, digital key pad, central monitoring and transmitting equipment. Complete system shall be addressable type.

B. All wiring shall be by intrusion alarm Sub Contractor and shall be as recommended by manufacturer furnishing equipment. All wiring shall be run exposed above acoustical tile ceilings. Provide J-hooks, bridle rings, etc. for cable support. Where no acoustical tile ceiling is present or conductors routed down into a wall, route conductors in conduit. The complete system shall be installed in accordance with manufacturer's specifications. Each intrusion alarm circuit shall be protected from lightning by installing surge protection units.

C. The alarm equipment shall be installed by a factory trained technician and placed in working order. The technician shall instruct operating personnel in the operation, adjustment and maintenance of the system.

D. Three sets of complete instruction for the operation, inspection, testing and maintenance of the system, including wiring diagrams and spare replacement part list shall be furnished before final acceptance of the system. Also, provide all special tools that are necessary for the maintenance of the equipment and include one set of fuses for each type and size.

E. Intrusion Alarm System Subcontractor shall submit a certification stating that he is an authorized representative for the manufacturer of the

equipment he is submitting for approval and that he maintains a fully equipped and stocked service shop and shall respond to service within 12 normal working hours.

F. All wiring shall be installed by intrusion alarm Sub Contractor who shall pull all wire and make up all connections.

G. Contractor shall include in base bid factoring training and certification of two employees of the Owner. Any electronic equipment such as laptops, etc., required to program system shall be provided.

1.04 OPERATIONS

A. When the passive infrared detector notes an intrusion in shall cause an auto-dialer to transmit telephone calls to supervisory personnel. Alarm shall be silent. All components shall be double supervised for disarrangements. Arm defeat key shall permit authorized access to the building. Digital key pad shall be located at the central monitoring and transmitting equipment to arm or disarm the entire system.
   1. Key Pad – Existing
   2. Ademco #V-Plex passive infrared detector - Existing
   3. Control panel – Existing -Honeywell Panel. Provide new battery packs

B. Control panel shall be equipped with a UL listed dialer for off premises central station monitoring. Low voltage contractor shall connect dialer to Telco line and include two (2) years of monitoring in contract. Monitoring shall be by Nichols Fire and Security or Stop Security.

C. Provide lightning arrestor surge modules for all wiring routed out of intrusion alarm control panel.

D. Provide connection to HVAC exterior unit(s) low pressure refrigerant switch alarm provided by Division 26. Coordinate locations with drawings. Local audible alarm shall be set for alarm at exterior HVAC units.

END OF SECTION

SECTION 27 0200
IP INTERCOM AND CLOCK SYSTEM

1.01 SUBMITTALS

A. Shop drawings shall be submitted as follows:
1. Manufacturer's published literature.
2. One line schematic diagram covering the complete building system.

B. Sound Contractor shall submit a certification stating that he is an authorized representative for the manufacturer of the equipment he is submitting for approval and that he maintains a fully equipped and stocked service shop and shall respond to service calls within 12 normal working hours.

1.02 MANUFACTURERS

A. For the purpose of selecting quality and type of major system components described herein, equipment manufactured by the DuKane (Edwards UTC) Corporation has been specified. The following manufacturers meeting these specifications in all respects are acceptable.
1. Rauland
2. Bogen
3. Telecor
4. Care-Hawk

B. The acceptable manufacturers systems listed in 1.02 A, shall be installed by the authorized local factory dealer/representative for that product. The factory dealer representative shall hold a current low voltage contractor's license.

Any interested parties shall submit a company resume showing years in business, certification stating that he is an authorized representative for the manufacturer of the equipment he is submitting for approval and that he maintains a fully equipped and stocked service shop and shall respond to service calls within 12 normal working hours, list of key personnel, copies of appropriate licenses and list of recently completed jobs during the normal prior approval period.

1.03 SCOPE

A. The work to be provided under this section consists of furnishing and installing all Intercom and Clock system equipment, cable and labor necessary for a complete and operating system as shown on the drawings and specified herein.

1.04 GENERAL REQUIREMENTS

A. All equipment shall bear the label of Underwriter's Laboratories and be listed for use under their re-examination service.

B. All work shall be accomplished by an accredited factory trained communication technician. He shall also train personnel designated by the Owner in the proper operation and maintenance of equipment. All work in conjunction with this installation shall be in accordance with the engineering standards as established by EIA.

All wiring shall be as recommended by manufacturer furnishing equipment except that each pair of cable shall be individually shielded. The manufacturer of this equipment shall provide a complete set of operating instructions, circuit diagrams and other information necessary for proper installation, operation and maintenance of the system. Three copies of the operating instructions shall be furnished to the Owner upon completion of the installation. All communications and program control systems shall be installed as a single system using common conduits and outlets. The complete system as herein specified shall be guaranteed to be free of defects in material and workmanship for a period of two (2) years from the date of acceptance.

C. Intercom and Clock System Subcontractor shall submit a certification stating that he is an authorized representative for the manufacturer of the equipment he is submitting for approval and that he maintains a fully equipped and stocked service shop and shall respond to service within 12 normal working hours.

1.05 OPERATIONS

A. Each speaker shall be tied into the master console and switched in accordance with the switching schedule shown on the drawings. All speakers shall be capable of two way voice communication.

B. Provide generation and distribution for up to seven distinct tones to all speakers for class change or other desired purposes. Provide master program clock within the console and set up school bell programming as desired by the Owner.

C. Push button switches shall be provided at locations shown for emergency calls.

D. Provide all call to all speakers.

E. Provide capability within intercom headend equipment for connection to Shoretel (VoIP) phone system. VoIP phone system to be furnished as part of allowance. Division 27 to coordinate with owner's selected vendor for connectivity between system such that any VoIP telephone can make paging announcements through intercom system.

F. Provide PoE (Power-Over-Ethernet) digital secondary clocks which shall operate via Owner's LAN without master controller requirements.

1.06 EQUIPMENT (GENERAL)

A. Sound and Communication Center – Existing CareHawk- to be relocated.

B. Ceiling recessed speaker assembly: Existing and to be reconnected.

C. Exterior wall speakers Existing and to be reconnected.
D. Volume control: Existing and to be reconnected.
E. Call in switch: Existing and to be reconnected.

F. PoE Clocks: Existing and to be reconnected.

1.09 EQUIPMENT AND CABLE INSTALLATION

A. Installation of sound reinforcement system shall be performed only by experienced electronic system installer.

B. Cable within equipment racks shall be routed in groups according to functions: control circuits, microphone circuits, line level circuits, loudspeaker circuits, and 120 VAC circuits. Cable shall be neatly arranged, but tight bundling which makes modifications difficult shall be avoided.

C. Pressure sensitive labels shall be affixed to cables at all termination points. Label method shall be indicated on record drawings.

D. Care shall be exercised in wiring so as to avoid damage to the cables and to the equipment. All wire joints and connections shall be made with resincore solder and small soldering iron or approved mechanical connectors. Soldering shall be neat and care must be taken to avoid "cold" solder joints. Splices in circuits shall be avoided. Connections to screw-type terminals shall be made with mechanically connected, un-insulated, spade-type lugs selected for the particular wire size in use and crimped.

E. All cable pairs shall be individually shielded, and all cable run underground or under slab shall be rated for wet location. All cabling not in conduit shall be plenum rated.

F. The Electrical Contractor shall ground the equipment racks via a #6 AWG insulated cable to earth ground.

G. Each speaker circuit shall be protected from lightning by installing surge protection units at punch down block located at console. Surge protectors shall be capable of handling maximum wattage on circuit.

H. All wiring above ceiling may be run exposed, when run exposed, or in areas with no acoustical tile ceiling or for vertical or in wall runs they shall be run in conduit. Conduit and its installation shall be as covered under Section 26 0020 of these specifications.

I. Outlets and their installation shall be as covered under Section 26 0040 of these specifications.

J. Cover plates and their installation shall be as covered under Section 26 0050.

END OF SECTION 270200

SECTION 27 0210
DATA/VOICE NETWORKING

1.01 SUBMITTALS

A. Prior to start of any work, contractor shall submit shop drawings as follows:

1. Manufacturer's published literature for each separate type of equipment being provided. Indicate model number on cutsheet.
2. One line schematic of complete system showing a floor plan to scale. Show locations and the type of outlets, as well as all rack locations, and estimated maximum distances to each rack.
3. Documentation of testing on all wiring and terminations as per EIA/TIA standards.

1.02 MANUFACTURERS

A. Acceptable manufacturers for each type of equipment specified shall be as noted throughout this specification section.

B. The acceptable manufacturers noted shall be installed by the authorized local factory dealer/representative for that product.

C. The contractor shall hold a current low voltage contractor's license and RCDD certificate. Any other interested parties shall submit a company resume showing years in business, certification stating that he is an authorized representative for the manufacturer of the equipment he is submitting for approval and that he maintains a fully equipped and stocked service shop and shall respond to service calls within 12 normal working hours, list of key personnel, copies of appropriate licenses and list of recently completed jobs. Submittal must be received no later than ten business days prior to bid date in order to be considered.

1.03 GENERAL

A. Workmanship
All work shall be performed in a workmanlike manner. Architect, Engineer, and/or Owner may observe the work procedures and workmanship of the Contractor but such observation will not relieve the contractor from responsibility for performance.

B. Warranty
The Contractor shall furnish a written warranty that describes the equipment supplied under these specifications will be free from defects of materials and workmanship for a period of fifteen years from the date of final acceptance unless otherwise specified and that all defects occurring within that period shall be corrected in a timely manner at no cost to the Owner.

C. Contractor's Qualifications

Contractor shall be required, before awarding of contract, to demonstrate to the complete satisfaction of the Engineer that he has the necessary facilities, ability and financial resources to execute the work in a satisfactory manner and within the time specified; that he has had experience in construction work as same or similar nature; that he has past history and references which will assure the Owner of his qualifications for executing the work.

Contractor shall submit a copy of a valid low-voltage license (Low-Voltage General, Low-Voltage Telecommunications or Low-Voltage Unrestricted as issued by the State Construction Industry Licensing Board of Low-Voltage Contractors).

Contractor shall submit a copy of a BICSI (Building Industry Consulting Service International) certified RCDD (Registered Communications Distributions Designer) certificate.

D. Comprehensive list of references
Attach a detailed list of references along with contact person, dates of work, mailing address, telephone numbers.

E. Contractor must provide proof of installation in a minimum of five sites using an enhanced Category 6e structured cabling with 100 or more active (working) nodes installed.

F. Data/Voice System Subcontractor shall submit a certification stating that he is an authorized representative for the manufacturer of the equipment he is submitting for approval and that he maintains a fully equipped and stocked service shop and shall respond to service within 12 normal working hours.

1.04 SCOPE OF WORK

A. Scope of Project Standards and Description

The cabling and wiring placed for voice and data communications on this undertaking shall be "Unshielded Twisted Pair" type and conform to the requirements contained in the latest editions of the National Electric Code (NEC) and the latest editions of the following American National Standards Institute (ANSI) specifications:

1. TIA/EIA 568-Commercial Building Telecommunications Wiring Standard
2. TIA/EIA 569-Commercial Building Standard for Telecommunications Pathways and Spaces
3. TIA/EIA 606-Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
4. TIA/EIA 607-Commercial Building Grounding and Bonding Requirements for Telecommunications
5. Addendums to TIA/EIA 568

B. Specifications for the Fiber Optic Backbone, Jacks and Outlets, Horizontal Wiring, and Patch Panel are provided in this specification section.

1.05 GUARANTEES

A. All communication outlets wired and serviceable must be tested and certified in compliance with TIA/EIA 568-C.2-1 enhanced Category 6e specifications. Testing must be "end-to-end". Test results shall be forwarded to Engineer a minimum of one week prior to final inspection.

1.06 TESTING AND CERTIFICATION

A. Testing fiber optic and copper distribution systems are crucial in assuring the overall integrity and satisfactory performance of the network. Test results quantify system quality, identify system faults, and establish the baseline accountability performance of the system. Proper testing also maximizes the longevity of the system, minimizes downtime and maintenance, and facilitates system upgrades or reconfiguration.

B. The Contractor shall provide proof of communications wiring systems certification and testing certification.

C. All data and voice wiring and terminations shall be tested and must pass TIA/EIA standards for enhanced Category 6e Cabling. All faults shall be corrected.

D. All test results must be printed and show the following primary results:

1. Wire map
2. Length
3. Insertion Loss
4. Near-end crosstalk (NEXT)
5. Power sum near end crosstalk (PSNEXT)
6. Equal-level far-end crosstalk (ELFEXT)
7. Power sum equal-level far-end crosstalk (PSELFEXT)
8. Return Loss
9. Propagation delay

1.07 OPTICAL FIBER CABLE

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. CommScope, Inc.
2. Berk-Tek; a Nexans company.
3. Corning Cable Systems.
4. General Cable Technologies Corporation.
5. Mohawk; a division of Belden CDT.
6. Superior Essex Inc.
7. Hellerman Tyton Connectivity Devices
8. Hitachi Cabling

B. Description: Multimode, Laser-optimized 50/125 -micrometer, 12-fiber, nonconductive, tight buffer, optical fiber cable.

1. Basis-of-Design Product: Subject to compliance with requirements, provide CommScope Uniprise LazrSPEED 550 cabling or comparable product by one of the listed manufactures.

2. Comply with ICEA S-83-596 for mechanical properties.

3. Comply with TIA/EIA-568-B.3 for performance specifications.

4. Comply with TIA/EIA-492AAA-D for detailed specifications.

5. Comply with ISO 11801for OM4 performance, Laser-optimized 50 micrometer fibers with 4700 MHz.km EMB at 850 nm.

6. Comply with IEC 607 93-2-10 for TYPE A1a.3 performance, Laser-optimized 50 micrometer fibers with 4700 MHz.km EMB at 850 nm.

7. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444, UL 1651, and NFPA 70 for the following types:

- Plenum Rated, Nonconductive: Type OFNP, complying with NFPA 262.
- Riser Rated, Nonconductive: Type OFNR, complying with UL 1666.

C. Jacket:

1. Jacket Color:
2. Aqua for multimode cable.
3. Yellow for singlemode cable
4. Cable cordage jacket, fiber, unit, and group color shall be according to TIA/EIA-598-B.
5. Imprinted with fiber count, fiber type, and aggregate length at regular intervals not to exceed 40 inches.

1.08 OPTICAL FIBER CABLE HARDWARE

A.Manufacturers: Subject to compliance with requirements, provide products by one of the following:
B.ADC.
C.American Technology Systems Industries, Inc.
D.Berk-Tek; a Nexans company.
E.Corning Cable Systems.
F.Dynacom Corporation.
G.Hubbell Premise Wiring.
H.Molex Premise Networks; a division of Molex, Inc.
I.Nordex/CDT; a subsidiary of Cable Design Technologies.
J.Optical Connectivity Solutions Division; Emerson Network Power.
K.Siemon Co. (The).

L.Cross-Connects and Patch Panels: Modular panels housing multiple-numbered, duplex cable connectors.

M. Number of Connectors per Field: One for each fiber of cable or cables assigned to field, plus spares and blank positions adequate to suit specified expansion criteria.

N. Patch Cords: Factory-made, dual-fiber cables in 36-inch lengths.

O. Cable Connecting Hardware:

P. Comply with Optical Fiber Connector Intermateability Standards (FOCIS) specifications of TIA/EIA-604-2, TIA/EIA-604-3-A, and TIA/EIA-604-12. Comply with TIA/EIA-568-B.3.

Q. Quick-connect, simplex and duplex, Type SC connectors. Insertion loss not more than 0.75 dB.

R. Type SFF connectors may be used in termination racks, panels, and equipment packages.

1.09 LOCAL AREA NETWORK (LAN) JACK AND OUTLET SPECIFICATIONS

A. Locations shown on drawings will be equipped with a consistent arrangement of LAN communications outlets.

B. Outlet faceplate for this arrangement shall be configured in the following fashion:

1. The jacks used shall fit properly in the outlet openings of the outlet faceplate. The jacks used shall conform to enhanced Category 6e parameters of TIA/EIA 568-C.2-1

   a. In a properly installed enhanced Category 6e UTP cabling system, the jacks used shall be capable of supporting LAN data rates of 1000 Mbps.

   b. The wiring arrangement of the jack shall conform to the TIA/EIA 568.

   c. The jack shall possess the following characteristics:

      1. The eight (8) position / eight (8) conductor jack shall be capable of supporting the previously defined data rates as well as voice (including ISDN).
      2. Utilization of 110 type or equivalent insulation displacement hardware for horizontal wire attachment and acceptance of 22 or 24 AWG conductors.
      3. The jack wires shall consist of 50 micro-inch lubricated gold plating over 100 micro-inch nickel underplating.

   d. Any vacant faceplate position shall be reserved for future growth and should have a dust cover/blank inserted.

C. Acceptable Manufacturer's: Mod-Tap, Ortronics, AT&T, AMP, and Hubbell, Interlink, Leviton, Panduit, and Siemon.

D. Each jack shall have faceplate labeled. Also neatly label backside of faceplate with a permanent marker to note jack number.

E. Labeling of multiple drops in a common space shall be sequentially numbered. Numbers shall not be assigned randomly. Coordinate prior to terminating at racks, no exceptions.

F. See drawings for jacket color required.

G. For all “WAP” drops, cabling shall be plenum rated Cat. 6A (augmented) cable. See drawings for additional information.

1.10 LOCAL AREA NETWORK (LAN) HORIZONTAL WIRING SPECIFICATIONS

A. This section covers the cable from the communications outlet to the patch panel in the MDF and all IDF wiring closets. These cables shall be Enhanced Category 6e Unshielded Twisted Pair cable. Each cable shall be placed in a "point-to-point" fashion from the work area outlet to the wiring closet for each communications outlet needed. There shall be no intermediate splices or cross connects in these cables.

B. The characteristics of the horizontal cable are as follows:
1. Enhanced Category 6e cable consisting of four pair of 23 AWG bare solid copper conductors insulated with a plenum rated material. The insulated conductors are tightly twisted into pairs and jacketed with plenum rated material. No type of shield is required in the sheath.
2. Each sheath shall contain four unshielded copper pairs. Each pair shall have a different twist per foot ratio ranging from 12 to 24 twists per foot. No more than 1/2" inch may be untwisted and the sheath may not be stripped back more than 1/2" inch at the jack during installation.
3. Cable shall have central crossweb to minimize crosstalk between pairs.

C. The cable component shall meet or exceed the following requirements:
1. ASNI/TIA 568-C.2 "Commercial Building Telecommunications Standard, Part 2: Balanced Twisted-Pair Telecommunications Cabling and Components Standard”
2. ASNI/TIA 1152 Requirements for Field Test Instruments and Measurements for Balanced Twisted Pair Cabling ”
3. Certified Enhanced Category 6e Cable under Third Party Cable Certification Program.
4. ICEA S-102-700
5. ANSI/ICEA S-102-732
6. UL Standard 444
7. National Electric Code - Article 800

D. Subject to compliance with specification requirements, the only acceptable Enhanced Cat-6e cables approved for use as follows:

1. Mohawk Advancenet
2. Hittachi HCM Premium series
3. Belden Datatwist 3600
4. General Cable Genspeed 6000
5. Berk-Tek Lanmark 1000

E. Plenum rated cable shall be used. The plenum cable shall be composed of four pair of 23 gauge bare solid copper conductors insulated with a plenum rated insulation that is the same material configuration on all four pairs, 3+1 or 2+2 designs are not allowed. The insulated conductors are tightly twisted into pairs and jacketed with low smoke plenum rated PVC. It shall conform to a NEC Type CMP for plenum and NEC Type CMR for riser applications.

1.11 SYSTEM DOCUMENTATION

A. As part of the wiring system installation, the Contractor shall provide detailed documentation of the distribution system to facilitate system administration, system maintenance and future system changes. This requirement includes as-built drawings with all cables and terminations identified, a bill of materials of all installed equipment and wiring, rack and backboard equipment layouts showing placement of support equipment, and model and serial numbers of all installed equipment. A clear and consistent nomenclature scheme is to be defined and used on the documentation and cable labeling which facilitates locating and identifying each cable.

B. System verification and acceptance documentation signed and dated by the installer (Contractor) and the design professional shall also be provided. This documentation shall include test measurements and system calibrations performed for the entire system. Sample system operations shall also be performed with actual hardware or using contractor provided test equipment and documented to verify that the system is operational and ready for acceptance. This shall also establish the baseline performance of the system.

1.12 TRAINING

A. Training of owner's personnel (a minimum of two) shall be provided. Training will cover the location nomenclature, documentation structure and contents, documentation maintenance procedures, a "walk-through" for location and labeling orientation, system reconfiguration using the MDF, and IDF-X facilities (Termination hardware, punch blocks, etc.).

B. Provide a record set plan noting drop locations and jack designations. As-built shall be a full size plan and shall be computer generated in AutoCAD 2012 format. Provide a CD to Owner with (as-build) on disc at

project closeout. At each rack provide a copy of (as-built) mounted on wall. Mount plan under plexiglass.

END OF SECTION

SECTION 27 0220
COMMUNICATIONS CONSTRUCTION REVIEWS, INSPECTION, AND TESTING

1.01 GENERAL

A. Comply with Division 1 - General Requirements.

1.02 CONSTRUCTION REVIEWS

A. The Architect or his representative shall observe and review the installation of all electrical systems shown on the drawings and as specified herein.

1.03 CONTRACTOR'S FINAL INSPECTION

A. At the time of the Contractor's final inspection, all systems shall be checked and tested for proper installation and operation by the Contractor in the presence of the Architect or his representative.

B. The Contractor shall furnish the personnel, tools and equipment required to inspect and test all systems.

C. Following is a list of items that the contractor must demonstrate to the Architect or his representative as complying with the plans and specifications. Please note that this list does not necessarily represent all items to be covered in the final inspection, but should give the Contractor an idea of what is to be reviewed.

1. Demonstrate that all devices are properly secured to boxes, that device plates are properly aligned and are not being used to secure device.

2. Demonstrate that Data/Voice Network cabling meets as testing and certifications as noted in section 270210.

3. Demonstrate that Fire Alarm System is in proper working order, and meeting all requirements outlined in specifications.

4. Demonstrate that Intrusion Alarm System is in proper working order, and meeting all requirements outlined in specifications.

5. Demonstrate that Intercom System is in proper working order, and meeting all requirements outlined in specifications.

A. FIRE ALARM

1. Red-Lined “As-Builts” completed showing device addresses and O&M Manuals.
2. System Certification showing each device listed and tested.
3. Owner trained on operation and maintenance of system.

B. INTRUSION ALARM

1. Red-Lined “As-Builts” completed showing device locations and O & M Manuals.
2. System Certification showing each device listed and tested.
3. Owner trained on operation and maintenance of system.

C. INTERCOM SYSTEM

1. Owner trained on operation and maintenance of system.

D. DATA/VOICE NETWORKING SYSTEM

1. Owner trained on operation and maintenance of system.

SIGNATURES

1. Richmond County Board of Education Media & Technology Services

   _____

2. Richmond County Board of Education Maintenance

   _____

3. GMK Representative

   _____

4. Electrical Design Consultants, Inc.

   _____

END OF SECTION

SECTION 32 3113
CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Posts, rails, and frames.

B. Wire fabric.

C. Manual gates with related hardware.

D. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete anchorage for posts.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

C. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric; 2011a (Reapproved 2022).

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

E. ASTM F567 - Standard Practice for Installation of Chain-Link Fence; 2023.

F. FS RR-F-191/1D - Fencing, Wire and Post Metal (Chain-Link Fence Fabric); 1990.

PART 2 PRODUCTS

2.01 COMPONENTS

A. Line Posts: 1.9 inch diameter.

B. Corner and Terminal Posts: 2.38 inch diameter.

C. Gate Posts: 3-1/2 inch diameter.

D. Top and Brace Rail: 1.66 inch diameter, plain end, sleeve coupled.

E. Bottom Rail: 1.66 inch diameter, plain end, sleeve coupled.

F. Gate Frame: 1.66 inch diameter for welded fabrication.

G. Fabric: 2 inch diamond mesh interwoven wire, 11 gauge, 0.1205 inch thick, top selvage knuckle end closed, bottom selvage twisted tight.

H. Tension Wire: 6 gauge, 0.1920 inch thick steel, single strand.

I. Tie Wire: Aluminum alloy steel wire.

2.02 MATERIALS

A. Posts, Rails, and Frames:
   1. Formed from hot-dipped galvanized steel sheet, ASTM A653/A653M, HSLAS, Grade 50, with G90 (Z275) zinc coating.
   2. Line Posts: Type I round in accordance with FS RR-F-191/1D.
   3. Terminal, Corner, Rail, Brace, and Gate Posts: Type I round in accordance with FS RR-F-191/1D.

B. Wire Fabric:
   1. ASTM A392 zinc coated steel chain link fabric.

2.03 MANUAL GATES AND RELATED HARDWARE

A. Hardware for Single Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; fork latch with gravity drop and padlock hasp; keeper to hold gate in fully open position.

B. Hinges: Finished to match fence components.
   1. Brackets: Round.
   2. Mounting: Center.
   3. Closing: Manual.

C. Latches: Finished to match fence components.
   1. Brackets: Round.
   2. Locking: Mechanical.

2.04 ACCESSORIES

A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.

B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.

2.05 FINISHES

A. Components (Other than Fabric): Galvanized in accordance with ASTM A123/A123M, at 1.7 ounces per square foot.

B. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.

C. Accessories: Same finish as framing.

PART 3 EXECUTION

3.01 EXAMINATION

3.02 INSTALLATION

A. Install framework, fabric, accessories and gates in accordance with ASTM F567.

B. Place fabric on outside of posts and rails.

C. Set intermediate posts plumb , in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.

D. Line Post Footing Depth Below Finish Grade: ASTM F567.

E. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: ASTM F567.

F. Provide top rail through line post tops and splice with 6 inch long rail sleeves.

G. Do not stretch fabric until concrete foundation has cured 28 days.

H. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.

I. Position bottom of fabric 2 inches above finished grade.

J. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.

K. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.

L. Install bottom tension wire stretched taut between terminal posts.

M. Do not attach the hinged side of gate to building wall; provide gate posts.

N. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.

O. Install gate locking device specified in Section 08 7100.

P. Peen all bolts upon installation.

3.03 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch.

B. Maximum Offset From True Position: 1 inch.

C. Do not infringe on adjacent property lines.

3.04 CLEANING

A. Leave immediate work area neat at end of each work day.

B. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.

C. Clean fence with mild household detergent and clean water rinse well.

D. Remove mortar from exposed posts and other fencing material using a 10 percent solution of muriatic acid followed immediately by several rinses with clean water.

E. Touch up scratched surfaces using materials recommended by manufacturer. Match touched-up paint color to factory-applied finish.

END OF SECTION