RFP2019-5 is attached for your consideration. Anyone accessing this Request for Proposal from the Barrow County website www.barrowga.org is responsible to insure the latest documents are in their possession including any addenda. All addenda, questions and answers will be posted on this site. This site should be visited frequently to insure an awareness of any updates.

Please insure proposals are submitted exactly as specified in the RFP. If you have any questions, please submit them in writing to the Barrow County Purchasing Agent as called for in the RFP.

Thank you.
REQUEST FOR PROPOSALS
RFP2019-5

AMBULANCE FACILITY

BARROW COUNTY, GEORGIA
AUGUST 8, 2018

DATE OF OPENING: AUGUST 23, 2018
REQUEST FOR PROPOSALS

AMBULANCE FACILITY
BARROW COUNTY BOARD OF COMMISSIONERS

Date: August 8, 2018

PURPOSE: The purpose of this request is to provide interested Contractors with sufficient information to enable them to submit a uniform proposal for the new Ambulance Facility for Barrow County Emergency Services located adjacent to the former Work Release facility at 59 Lee Street Winder, Ga. 30680 (hereafter called “project”) as required by the Barrow County Board of Commissioners, and to set forth a systematic method that will be fair and impartial to all parties concerned in order to generate responses that can be equally evaluated by the County.

GENERAL: Barrow County is interested in entering into an agreement with a Contractor that consists of an Ambulance Facility at 59 Lee Street Winder, Ga. 30680. You are invited to submit a response for this requirement.

OBJECTIVE: The “Project” consists of the construction of a new Ambulance Facility. The building is a 30’x 30’ Pre-engineered Metal Building with 1:12 roof slope and Kynar wall and roof panels. Lateral bracing to be in the rear two bays on each side. The building has one walk door and a 14’ x 14’ electric operable overhead door. Refer to the drawings and project manual as prepared by CARTER WATKINS ASSOCIATES ARCHITECTS, INC. included in this RFP. Contracting shall be by means of a Contractor for Construction between one Contractor and Barrow County. Barrow County will perform required demolition of the existing concrete slab and removal of the existing fence. Contractor to provide building construction, concrete drive and sidewalks and removal of concrete curb and gutter at existing parking in order to tie new concrete apron into the paving.

COMPLIANCE WITH THE REQUEST FOR PROPOSAL (RFP): Each prospective Contractor must comply with all requirements of this RFP. Notice is hereby given to all Contractors that if their submittals are defective or irregular, the same may be rejected immediately. To facilitate comparative analysis and evaluation of submittals, it is desired that a uniform format be employed in structuring each. The required format will coincide with specifications given later in this notice. Each Contractor’s degree of compliance with the requirements of this notice will be a factor in the subsequent evaluation and possible selection for providing designated services. All instructions are to be considered an integral part of this RFP.

FIRM PRICE: Prices quoted by Contractors shall be firm prices, not subject to increase and shall not include Federal or State Tax. All prices shall be for delivery, our destination, F.O.B. freight prepaid Winder, Georgia, unless otherwise shown. Firm prices shall include all associated costs as defined in the Specifications. Invoices covering required services payable by the County will be paid Net 30 days from date of invoice. Reference the enclosed Agreement for Barrow County’s payment process.
LIQUIDATED DAMAGES: PROJECT COMPLETION WILL BE 120 DAYS FROM DATE OF THE NOTICE TO PROCEED. Liquidated damages of One Hundred Fifty Dollars ($150.00) per day will be assessed for each day after completion date until project is completed.

RIGHT TO SUBMITTED MATERIALS: All responses, inquiries, or correspondence relating or in reference to this schedule, exhibit, and other documentation by the Contractor shall be properly identified as to Contractor and will become the property of Barrow County when received. Barrow County will not be responsible for any expenses incurred by any Contractor in the development of a response to this Request for Proposal including any onsite (or otherwise) interviews and/or presentations, and/or supplemental information provided, submitted, or given to the County or its representatives. Further, the County shall reserve the right to cancel the work described herein prior to issuance and acceptance of any contractual agreement/purchase order by the recommended Contractor even if the Board of Commissioners has formally accepted a recommendation.

CLARITY AND THOROUGHNESS: Barrow County must determine which Contractor best meets its immediate and long-term objectives. It is each proposing Contractor’s responsibility to ensure that all information in the proposal is thorough and easily readable by County. County, at its sole discretion, may reject any submittal that is unclear in any way. It is requested that Contractors keep their responses concise, to the point and use as little technical jargon as possible.

INQUIRIES: Proposing Contractors, or their representatives or agents, shall not contact any members, or employees, of the Barrow County Board of Commissioners or any Barrow County Elected Official or employee of any Barrow County Elected Official regarding this RFP, proposal evaluation, or selection process from the time the RFP is issued until the time a notification of intent to award is announced. Questions relating to this RFP must be submitted in writing to: Cindy Clack, Senior Buyer (email: cclack@barrowga.org). Deadline for questions is August 16, 2018 at 3:00 p.m. EST. All questions submitted by this date will be answered and posted as an addendum on the website www.barrowga.org.

PRE-PROPOSAL MEETING: A Mandatory Pre-Proposal Meeting will be held August 16, 2018 at 10:00 am at 59 Lee Street Winder, Ga. 30680. Failure to attend this mandatory pre-proposal meeting disqualifies you from submitting a bid. NO EXCEPTIONS!!

EVENTS: The following dates and times apply to this RFP:

1. Issue Request for Proposal ---------------August 8, 2018
2. Mandatory Pre-Proposal Site Visit---------August 16, 2018 (10:00 AM) EST
3. Deadline for Questions ------------------August 16, 2018 (3:00 PM) EST
4. Proposal Due Date -----------------------------------------------August 23, 2018 (12:00 Noon) EST
5. Proposal Opening -----------------------------------------------August 23, 2018 (2:00 PM) EST
6. Selection Recommendation to BOC ------------September 11, 2018 (tentative)
7. Award of Agreement if Approved ----------------September 12, 2018(tentative)
8. Work to begin---------------------------------------------------September 2018 (tentative)

SEALED PROPOSALS: Each proposal must be submitted in a sealed envelope, addressed to the County. Each sealed envelope containing a proposal must be plainly marked on the outside with “RFP2019-5 Ambulance Facility”. If a proposal is forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope to the attention of the County at the address shown below and also plainly marked with “RFP2019-5 Ambulance Facility”. The County will not be responsible for late mail
deliveries and **no proposal will be accepted if received after the time stipulated by this RFP.** No proposal may be withdrawn or modified in any way after the deadline for RFP opening. **FAILURE TO COMPLY WITH THE ABOVE INSTRUCTIONS WILL DISQUALIFY THE PROPOSAL.**

**PROPOSALS SHALL BE SUBMITTED TO:**  
Barrow County Board of Commissioners  
Danielle Austin, County Clerk’s Office  
30 North Broad Street  
Winder, GA  30680  
770.307.3005

Sealed proposals will be accepted in the Clerk’s Office, no later than **12:00 pm (Noon) Thursday, August 23, 2018.** Proposals will be opened in the Historic Courthouse Conference Room at the above address at 2:00 p.m. on August 23, 2018. All proposals will be evaluated and the project will be awarded, if it is awarded, within 60 days of the proposal opening.

**LIABILITY AND RISK MANAGEMENT:** See attached Agreement for requirements.

**INSURANCE REQUIREMENTS:**

- All Contractors and subcontractors shall provide certificates of insurance to the County for the minimum amounts of insurance prescribed by the County’s Standard Construction Services Agreement and shall comply with all other insurance requirements contained therein.
- No contract will be awarded until the appropriate certificates of insurance are in the possession of the Purchasing Office.
- Indemnification. See Standard Construction Services Agreement.

**PROPOSAL FORMAT:** Contractors should submit an original (un-bound) and five (5) copies of the requested proposal. **Please do not bind the original copy.** The proposal shall consist of the following in the order shown:

- **Letter of Introduction** -- Provide a letter of introduction.

- **Company Profile** – Describe your business including, but not limited to, its years in business, number of clients using your services, and any distinctiveness of your business. Provide legal status and Federal Tax ID number.

- **References** – Include references of clients; please provide name, address, telephone number, contact name and contact title. Use the attached Reference Document (2 pages).

- **Proposal** – Submit proposal per specifications.

- **Pricing** – Use the attached “Ambulance Facility” Proposal Form in submitting pricing.

- **Warranty** – Attach warranty statement.
• **Optional Information** – If any not covered above that the Contractor deems relevant.

• **Construction Services Agreement** – *All submitting Contractors are required to execute the Construction Services Agreement (the “Agreement”) included in this package to indicate the willingness to comply with all terms of the Agreement and to submit the executed Agreement with the proposal.* Upon award of the Project to the winning Contractor, the County will execute the Agreement. Please be advised that the proposing Contractor’s execution of the Agreement prior to the award of the Project does not constitute the acceptance of an offer by the County or otherwise bind the County in any way until such time as the County executes the Agreement. *Exhibit “C” must be executed and submitted with the Construction Services Agreement that is submitted with the Proposal (please leave date and amount of agreement blank).*

*Proposals are to be limited to thirty (30) pages single-sided (this does not include References, or the Executed Agreement).*

**PROPOSAL EVALUATIONS AND SELECTION PROCESS AND TIMELINE:** Proposals will be reviewed and one proposal will be selected that, in the opinion of the County, is most advantageous to meeting its needs. Evaluation will include pricing. Barrow County reserves the right to reject any and all proposals submitted, or where it may serve the best interest of the County, to request additional information or clarification from those submitting proposals. The County, in its sole discretion, also reserves the right to waive any formalities or technicalities relative to any or all proposals. Where two or more companies are deemed equal, the County reserves the right to make the award to one of the companies. At the County’s discretion, presentations may be requested as part of the evaluation process.

**ASSIGNMENT OF CONTRACTUAL RIGHTS:** It is agreed that the CONTRACTOR selected will not assign, transfer, convey, or otherwise dispose of a contract that results from this invitation or his right, title, or interest in or to the same, any part thereof, without written consent by Barrow County.

**DOCUMENTS:** The following are included in this “Request for Proposal”:

- Memo (1 Page)
- Request For Proposal (5 Pages)
- Project Manual / Specifications (162 Pages)
- Drawings (6 Pages)
- Proposal Form (1 Page)
- References Form (2 Pages)
- Notice to Proceed (1 Page)
- Agreement (16 Pages)
- Barrow County Code of Ethics Ordinance (30 Pages)
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1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 PROJECT DESCRIPTION

A. The Project consists of the construction of a new Ambulance Facility. The building is a 30’ x 30’ Pre-engineered Metal Building with 1:12 roof slope and Kynar wall and roof panels. Lateral bracing to be in the rear two bays on each side. The building has one walk door and a 14’ x 14’ electric operable overhead door. Refer to the drawings and project manual as prepared by CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

Barrow County will perform required demolition of the existing concrete slab and removal of the existing fence. Contractor to provide building construction, concrete drive and sidewalks and removal of concrete curb and gutter at existing parking in order to tie new concrete apron into the paving.

1.3 CONTRACTORS USE OF PREMISES

A. General: Limit use of the premises only to construction activities in areas indicated.

1. Confine operations to areas within Construction limits to areas mutually agreed upon with the Owner. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

2. Keep driveways and entrances serving the premises and the park grounds clean and available to the Owner. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

END OF SECTION
ALLOWANCES ARE AS FOLLOWS (IF ANY):

1. Hardware Allowance: (allowance to provide for the purchase of hardware materials only. Labor, preparation, etc. to be included in base bid amount). Figures below are not inclusive of Access Control and do not apply to specialty doors (Detention, Vault doors, etc.)

   $ 1,000.00 per new exterior door leaf
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section specifies administrative and procedural requirements for Alternates.
B. Definition: an Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in Contract Documents.
C. Coordination: Coordinate related Work and modify or adjust adjacent work as necessary to ensure that work affected by each accepted Alternate is complete and fully integrated into the project.
D. Notification: Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Alternates.
E. Schedule: Specification Sections contain requirements for materials and methods necessary to achieve the work described under each Alternate.

Alternate Additions/Deductions to the Base Bid (IF ANY)
1.

PART 2 - PRODUCTS (Not Applicable)
PART 3 - EXECUTION (Not Applicable)
END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.2 SUMMARY
A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
B. The Contractor’s Construction Schedule and the Schedule of Submittals are included under Section “Submittals.”
C. Standards: Refer to Section “Definitions and Standards” for applicability of industry standards to produce specified.
D. Procedural requirements governing the Contractor’s selection of products and product options are included under Section “Materials and Equipment.”

1.3 DEFINITIONS
A. Definitions used in the Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:

1. Revisions to Contract Documents requested by the Owner or Architect.
2. Specified options of products and construction methods included in Contract Documents.
3. The Contractor’s determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS
A. Substitution Request Submittal: Requests for substitution will be considered if received within 15 days after commencement of the work. Requests received more than 15 days after commencement Of the Work may be considered or rejected at the discretion of the Architect.
1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.

2. The Architect will consider only those requests accompanied by a copy of the Request for Substitution form bound herein, filled out completely, signed, and including the required attachments.

3. Architect’s Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, whichever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a Change Order.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Conditions: The Contractor’s substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of Contract Documents.
3. The request is timely, fully documented and properly submitted.
4. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the work promptly or coordinate activities properly.
5. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
6. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar
considerations.

7. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

8. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

9. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.

B. The Contractor’s submittal and Architect’s acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION
PROPOSED REQUEST FOR SUBSTITUTION

TO: ______________________________

____________________________
____________________________
____________________________

FROM: ______________________________

Name of Manufacturer

____________________________

Street Address

____________________________

City and State

____________________________

Phone number and name of person to contact

PROJECT: ______________________________

____________________________
____________________________
____________________________

1. Specification Section and Paragraph numbers of product specified

______________________________________________________________.

2. Proposed Substitute

A. Name and Model No:

B. Description:

C. Attach applicable Submittals as required by the referenced Specification Section, i.e. Product Data, Materials List, Shop Drawings, Samples, Design Data, Test Reports, and Certificates.
Attach Shop Drawings to the effect of the proposed substitution on adjacent components of the work.

D. Insert Numbers of applicable reference standards:

E. Attach a color chart; if applicable.

F. Attach installation instructions.

3. Manufacturer’s Reputation: Attach the following:
   A. Evidence of reputation for prompt delivery.
   B. Evidence of reputation for efficiency in servicing products.

4. Comparison: Attach an itemized comparison of the proposed substitution with product specified. Significant qualities may include elements such as size, weight, durability, performance, and visual effects.

5. Changes in Work: Attach data relating to changes required in other work to permit use of proposed substitution and changes required in construction schedule and overall contract time. Coordinate changes or modifications needed to other parts of the work and to construction performed by the Owner and separate Contractors that will be necessary to accommodate the proposed substitution.

6. Cost Data: Attach accurate cost data on proposed substitution in comparison with product specified.

7. Previous Installation: Provide the following information on similar projects on which proposed substitution was used, list projects in the locale of the project primarily and then in other areas that best represent its application on this project:

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<th>Date of Installation</th>
<th>Name, Address and Phone Number of Architect</th>
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A.
8. In making a request for substitution, the Manufacturer, Installer, and Contractor each represents that:

A. He has examined the Drawings and Specifications and has determined that, to the best of his knowledge, the proposed substitution is appropriate for the use intended in the Drawings and Specifications.

B. He will provide the same or better warranty for substitution as for product or method specified.

C. The product is equal or better in quality and serviceability to the specified item.

9. In making a request for substitution, the Installer and Contractor each represents that:

A. He will coordinate the installation of accepted substitution into the work, making such changes as may be required for the work to be complete in all respects.

B. He waives all claims for additional costs related to substitution which consequently become apparent.

C. Cost data is complete and includes all related costs under his Contract, but excludes costs under separate contracts and the Architect’s redesign costs.

D. The substitution meets the requirements of the Contract Documents, regardless of the evidence submitted or any review or independent investigation by the Owner or the Architect.
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to this section.

1.2 SUMMARY

A. This section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect on AIA form G710, Architect’s Supplemental Instructions.

1.4 CHANGE ORDER PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Architect, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.

1. Proposal requests issued by the Architect are for information only. Do not consider them instruction either to stop work in progress, or to execute the proposed change.

2. Unless otherwise indicated in the proposal request, within 20 days of receipt of the proposal request, submit to the Architect for the Owner’s review an estimate of cost necessary to execute the proposed change.

a. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

B. Contractor-Initiated Change Order Proposals: When latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a change proposal to the Architect.

1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.

2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Comply with requirements in Section “Product Substitutions” if the proposed change in the Work requires the substitution of one product or system for a product or system specified.

1.5 ALLOWANCES

A. Allowance Adjustment: Base each Change Order Proposal for an allowance cost adjustment solely on the difference between the actual purchase amount and the allowance, multiplied by the final measurement of work-in-place, with reasonable allowances, where applicable, for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: When the Owner and Contractor are not in total agreement on the terms of a Change Order Proposal Request, the Architect may issue a Construction Change Directive on AIA for G714, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.7 CHANGE ORDER PROCEDURES

A. Upon the Owner’s approval of a Change Order Proposal, the Architect will issue a Change Order for signatures of the Owner and Contractor on AIA Form G701, as provided in the Conditions of the Contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION
1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor’s Applications for Payment.

1.3 SCHEDULE OF VALUES

A. Coordinate preparation of the Schedule of Values with preparation of the Contractor’s Construction Schedule.

1. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment.

B. Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values.

1. Identification: Include the following Project Identification on the Schedule of Values:

   a. Project name
   b. Name of the Architect
   c. Project number
   d. Contractor’s name and address
   e. Date of submittal

2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:

   a. Generic name
b. Related Specification Section

c. Name of subcontractor

d. Name of Manufacturer or fabricator

e. Name of supplier

f. Change Orders (numbers) that have affected value

g. Dollar value

h. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent

3. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

1.4 APPLICATIONS FOR PAYMENT:

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.

B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for payment.

D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.

E. Transmittal: Submit 3 executed copies of each Application for Payment to the Architect by means ensuring receipt within 24 hours.

F. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.

G. Administrative actions and submittals that shall proceed or coincide with this application include:

1. Occupancy permits and similar approvals

2. Warranties (guarantees) and maintenance agreements
CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
BARROW COUNTY AMBULANCE FACILITY  
JULY 31, 2018

3. Test/adjust/balance records
4. Maintenance instructions
5. Meter readings
6. Start-up performance reports
7. Change-over information related to Owner’s occupancy, use, operation, and maintenance.
8. Final cleaning
9. Application for reduction of retainage, and consent of surety
10. Advice on shifting insurance coverages
11. List of incomplete Work, recognized as exceptions to Architect’s Certificate of Substantial completion.

H. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:

1. Completion of Project closeout requirements
2. Completion of items specified for completion after Substantial Completion
3. Assurance that unsettled claims will be settled
4. Assurance that Work not complete and accepted will be completed without undue delay
5. Transmittal of required Project construction records to Owner
6. Certified property survey.
7. Proof that taxes, fees, and similar obligations have been paid
8. Release of liens
9. Removal of temporary facilities and services
10. Removal of surplus materials, rubbish, and similar elements
11. Change of door locks to Owner’s access

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION
PART 1 - GENERAL

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

1.2 SUMMARY
A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
   1. Coordination
   2. General installation provisions
   3. Cleaning and protection

1.3 COORDINATION
A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
   1. Where installation of one part of the work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
   2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.
B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
   1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their work is required.
C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS
A. Inspection of Conditions: Require the Installer of each major component to inspect both the
substrate and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer’s Instructions: Comply with manufacturer’s installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing work. Secure work true to line and level. Allow for expansion and building movement.

E. Visual Effects: Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

F. Recheck measurements and dimensions, before starting each installation.

G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.2 CLEANING AND PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including general and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
      1. Pre-Construction Conference
      2. Progress Meetings — to be held every other week at an agreed-upon time/date.
   B. Construction schedules are specified in another Division-1 Section.

1.3 PRE-CONSTRUCTION CONFERENCE
   A. Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
   B. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the work.
   C. Agenda: Discuss items of significance that could affect progress including such topics as:
      1. Tentative construction schedule
      2. Critical Work sequencing
      3. Designation of responsible personnel
      4. Procedures for processing field decisions and Change Orders
      5. Procedures for processing Applications for Payment
      6. Distribution of Contract Documents
      7. Submittal of Shop Drawings, Product Data and Samples
      8. Preparation of record documents
      9. Use of the premises
     10. Office, Work, and storage areas
     11. Equipment deliveries and priorities
     12. Safety procedures
13. First aid
14. Security
15. Housekeeping
16. Working hours

1.4 PROGRESS MEETINGS

A. Conduct progress meetings at the Project site at weekly intervals. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

B. Attendees: In addition to representatives of the Owner and Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.

1. Contractor’s Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor’s Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of each entity present, including such items as:
   a. Interface requirements
   b. Time
   c. Sequences
   d. Deliveries
   e. Off-site fabrication problems
   f. Access
   g. Site utilization
   h. Temporary facilities and services
   i. Hours of Work
d. Reporting: No later than 3 days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1. Schedule Updating: Revise the construction schedule after each progress meeting where revision to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION
PART 1 - GENERAL

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

1.2 SUMMARY
A. This Section specifies administrative and procedural requirements for submittals required for performance of the work, including:
   1. Contractor's construction schedule
   2. Daily construction reports
   3. Shop Drawings
   4. Product Data
   5. Samples
B. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
   1. Permits
   2. Applications for payment
   3. Performance and payment bonds
   4. Insurance certificates
   5. List of Subcontractors
C. The Schedule of Values submittal is included in Section "Applications for Payment."

1.3 SUBMITTAL PROCEDURES
A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related elements of the work so processing will not be delayed by the need to review submittals concurrently for coordination.
a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.
   a. Allow three weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
   b. If an intermediate submittal is necessary, process the same as the initial submittal.
   c. Allow two weeks for reprocessing each submittal.
   d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the work to permit processing.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
   1. Provide a space approximately 4” x 5” on the label or beside the title block on Shop Drawings to record the Contractor’s review and approval markings and the action taken.
   2. Include the following information on the label for processing and recording action taken.
      a. Project name
      b. Date
      c. Name and address of Architect
      d. Name and address of Contractor
      e. Name and address of subcontractor
      f. Name and address of supplier
      g. Name of manufacturer
      h. Number and title of appropriate Specification Section
      i. Drawing number and detail references, as appropriate

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
   1. On the transmittal Record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor’s certification that information complies with Contract Document requirements.
1.4 CONTRACTOR’S CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart type Contractor’s construction schedule. Submit within 30 days of the date established for “Commencement of the Work”.
   1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the “Schedule of Values”.

B. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
   1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.

C. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.5 SHOP DRAWINGS

A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
   1. Dimensions
   2. Identification of products and materials included
   3. Compliance with specified standards
   4. Notation of coordination requirements
   5. Notation of dimensions established by field measurement.
   6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings of sheets at least 8 1/2” x 11” but no larger then 30” x 42”.
   7. Initial Submittal: Submit one correctable translucent reproducible print and two blue or black-line print for the Architect’s review; the reproducible print will be returned.
   8. Final Submittal: Submit three blue or black-line prints; submit 5 prints where required for
maintenance manuals. 2 prints will be retained; the remainder will be returned.

9. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

C. SPECIFIC SHOP DRAWINGS TO BE SUBMITTED, IN ADDITION TO CUSTOMARY ITEMS, ARE AS FOLLOWS:

1. Engineered Wood Truss Shop drawings with Georgia Registered Engineer’s Stamp.
2. Steel Stud Shop drawings with Georgia Registered Engineer’s Stamp.
4. Roofing, flashing, and coping shop drawings.
5. Millwork and Cabinetry.
6. Interior Finishes.
7. HVAC, Plumbing, and Electrical.

1.6 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer’s installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
   a. Manufacturer’s printed recommendations
   b. Compliance with recognized trade association standards
   c. Compliance with recognized testing agency standards
   d. Application of testing agency labels and seals
   e. Notation of dimensions verified by field measurement
   f. Notation of coordination requirements

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

3. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.

4. Submittals: Submit 3 copies of each required submittal; submit 5 copies where required for
maintenance manuals. The Architect will retain one, and will return the other marked with action taken and corrections or modifications required.

a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer’s possession.

b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.7 SAMPLES

A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.

1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect’s Sample. Include the following:

a. Generic description of the Sample

b. Sample source

c. Product name or name of manufacturer

d. Compliance with recognized standards

e. Availability and delivery time

2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3) that show approximate limits of the variations.

b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.

3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
   
a. Preliminary submittals will be reviewed and returned with the Architect’s mark indicating selection and other action.

4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken.

5. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
   
a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

1.8 ARCHITECT’S ACTION

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.

   1. Compliance with specified characteristics is the Contractor’s responsibility.

B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

   1. Final Unrestricted Release: Where submittals are marked "Approved “ or No Exceptions Taken” that part of the work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance. This does NOT preclude the Contractor from following the Construction Documents in any way.
This does not comprise the Architect’s “approval” of the submittal, other than for a cursory review, and does not allow the contractor to deviate from the documents in any fashion. It is simply a courtesy review of the submittal. The Architect has outlined the project in the Construction Document and any variation is taken at the Contractor’s risk.

2. Final-But-Restricted Release: When submittals are marked "Make Corrections Noted” that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

3. Returned for Resubmittal: When submittal is marked "Rejected, Resubmit,” do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.

   a. Do not permit submittals marked "Rejected, Resubmit” to be used at the Project site, or elsewhere where Work is in progress.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS
A. General: Basic Contract definitions are included in the General Conditions.
B. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, other paragraphs or schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limitation on location is intended.
C. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Architect," "requested by the Architect," and similar phrases.
D. Approve: The term "approved," where used in conjunction with the Architect’s action on the Contractor's submittals, applications, and requests, is limited to the Architect’s duties and responsibilities as stated in General and Supplementary Conditions.
E. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
F. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
G. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working b dimension, finishing, curing, protecting, cleaning, and similar operations."
H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
I. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor, for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
   1. The term "experienced" when used with the term "Installer" means having a minimum of 5 previous Projects similar in size and scope to this Project, being familiar with the precautions required, and having complied with requirements of the authority having jurisdiction.
   2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction...
activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter.” It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

3. Assignment of Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or opinion. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

   a. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

J. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.

K. Testing Laboratories: A “testing laboratory” is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with The standard in effect as of date of Contract Documents.

C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Architect for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the
minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity’s construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

2. Although copies of standards needed for enforcement of requirements may be included as part of required submittals, the Architect reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.

E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the “Encyclopedia of Associations,” published by Gale Research Co., available in most libraries.

1.4 GOVERNING REGULATIONS/AUTHORITIES

A. The Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents; that information may or may not be of significance to the Contractor. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.

1.5 SUBMITTALS

A. Permits, Licenses, and Certificates: For the Owner’s records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.
PART 1 - GENERAL

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

1.2 SUMMARY
A. This Section specifies administrative and procedural requirements governing the Contractor’s selection of products for use in the Project.
B. The Contractor’s Construction Schedule and the Schedule of Submittals are included under Section “Submittals.”
C. Standards: Refer to Section “Definitions and Standards” for applicability of industry standards to products specified.
D. Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section “Product Substitutions.”

1.3 DEFINITIONS
A. Definitions used in the Article are not intended to change the meaning of other terms used in the Contract Documents, such as “specialties,” “systems,” “structure,” “finishes,” “accessories,” and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.
1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   a. "Named Products" are items identified by manufacturer’s product name, including make or model designation, indicated in the manufacturer’s published product literature, that is current as of the date of the Contract Documents.
2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
3. "Equipment" is a product with operational parts, whether motorized of manually operated, that requires service connections such as wiring or piping.

1.4 QUALITY ASSURANCE
A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.

B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer’s or producer’s nameplates or trademarks on exposed surfaces of products which will be exposed to View in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
   a. Name of product and manufacturer
   b. Model and serial number
   c. Capacity
   d. Speed
   e. Ratings

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle products in accordance with the manufacturer’s recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

3. Deliver products to the site in the manufacturer’s original sealed container or other packaging
system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.

7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer’s instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.

1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.

2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. Substitutions will be permitted, if approved equal.

2. Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. Substitutions will be permitted, if approved equal.

3. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
4. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
   a. Manufacturer’s recommendations may be contained in published product literature, or by the manufacturer’s certification of performance.

5. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.

6. Visual Matching: Where Specifications require matching an established Sample, the Architect’s decision will be final on whether a proposed product matches satisfactorily.
   a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.

7. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer’s standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.

8. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division-1 for allowances that control product selection, and for procedures required for processing such selections.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

A. Comply with manufacturer’s instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work.

1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.

B. Temporary utilities required include but are not limited to:
   1. Water service and distribution
   2. Temporary electric power and light
   3. Telephone service.
   4. Internet Service with email, Computer, and Printer.

C. Temporary construction and support facilities required include but are not limited to:
   1. Temporary heat
   2. Field offices and storage sheds
   3. Sanitary facilities, including drinking water
   4. Temporary enclosures
   5. Elevator use
   6. Temporary Project identification signs and bulletin boards
   7. Waste disposal services
   8. Rodent and pest control
   9. Construction aids and miscellaneous services and facilities.

D. Security and protection facilities required include but are not limited to:
   1. Temporary fire protection
   2. Barricades, warning signs, lights
   3. Environmental protection

1.3 SUBMITTALS

A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.
1.4 QUALITY ASSURANCE
A. Regulations: Comply with industry standards and applicable laws and regulations if authorities having jurisdiction, including but not limited to:
   1. Building Code requirements
   2. Health and safety regulations
   3. Utility company regulations
   4. Police, Fire Department and Rescue Squad rules
   5. Environmental protection regulations
   1. Refer to “Guidelines for Bid Conditions for Temporary Job Utilities and Services”, prepared jointly by AGC and ASC, for industry recommendations.
   2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS
A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.
B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS
2.1 MATERIALS
A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
B. Lumber and Plywood: Comply with requirements in Division-6 Section “Rough Carpentry.”
1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.

2. For signs and directory boards, provide exterior type, Grade B-B high Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.

3. For fences and vision barriers, provide exterior type, minimum 3/8” thick plywood.

C. Gypsum Wallboard: Provide gypsum wallboard complying with requirements of ASTM C 36 on interior walls of temporary offices.

D. Paint: Comply with requirements of Division-9 Section "Finish Painting."
   1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
   2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.
   3. For interior walls of temporary offices, provide two coats interior latex flat wall paint.

E. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

F. Water: Provide potable water approved by local health authorities.

2.2 EQUIPMENT

A. General: Provide new equipment; if acceptable to the Architect, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Water Hoses: Provide 3/4” heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.

C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

D. Electrical Power Cords: Provide grounded extension cords; use “hard-service” cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.
F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.

G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.

H. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.

I. First Aid Supplies: Comply with governing regulations.

J. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

   1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Connect to existing service.

B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.

   1. Sterilization: Sterilize temporary water piping prior to use.

C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters
and main distribution switch gear.

1. Except where overhead service must be used, install electric power service underground.

2. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.

D. Temporary Lighting: Whenever overhead floor or roof deck has been installed, provide temporary lighting with local switching.

1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Temporary Telephones: Provide temporary telephone service for all personnel engaged in construction activities, throughout the construction period. Install telephone on a separate line for each temporary office and first aid station. Where an office has more than two occupants, install a telephone for each additional occupant or pair of occupants.

1. At each telephone, post a list of important telephone numbers.

3.3 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES

A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access.

1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

C. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

D. Heating Facilities: Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.
1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.

E. Field offices: Provide insulated, weather-tight temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use for small progress meetings. Furnish and equip offices as follows:

F. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.

1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.

G. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.

H. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

1. Provide safety showers, eye-wash fountains and similar facilities for convenience, safety and sanitation of personnel.

I. Drinking Water Facilities: Provide containerized tap-dispenser bottled-water type drinking water units, including paper supply.

1. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F (7 to 13 deg C).

J. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 sq feet or less with plywood or similar materials.

3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.

4. Where temporary wood or plywood enclosure exceeds 100 sq ft in area, use UL-labeled fire-retardant treated material for framing and main sheathing.

K. Temporary Elevator Use: Use of Service Elevator for movement of materials and personnel is permitted.
L. Project Identification and Temporary Signs: Prepare project identification and other signs of the size indicated; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.
   1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.
   2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

M. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

N. Rodent and Pest Control: Retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Employ this service to perform extermination and control procedures at regular intervals so the Project will be relatively free of pests and their residues at Substantial Completion. Perform control operations in a lawful manner using environmentally safe materials.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer as requested by the Architect.

   1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
   2. Store combustible materials in containers in fire-safe locations.
   3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit
smoking in hazardous fire exposure areas.

4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.

D. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.

E. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

F. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.5 OPERATION, TERMINATION AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.

2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves the right to take possession of Project identification signs.

2. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:
   a. Replace air filters and clean inside of ductwork and housings.
   b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
   c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION
PART 1 - GENERAL

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

1.2 SUMMARY
A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
   1. Inspection procedures
   2. Project record document submittal
   3. Operating and maintenance manual submittal
   4. Submittal of warranties
   5. Final clearing
B. Closeout requirements for specific construction activities are included in the appropriate Sections in Division-2 through -16.

1.3 SUBSTANTIAL COMPLETION
A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
   1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
      a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.
   2. Advise Owner of pending insurance change-over requirements.
   3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
   4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
   5. Submit record drawings, maintenance manuals, and similar final record information.
   6. Deliver tools, spare parts, extra stock, and similar items.
   7. Make final change-over of permanent locks and transmit keys to the Owner. Advise the
Owner’s personnel of change-over in security provisions.

8. Complete start-up testing of systems, and instruction of the Owner’s operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.

9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

B. Inspect Procedures: On receipt of a request for inspection the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect will repeat inspection when requested and assured that the work has been substantially completed.

2. Results of the completed inspection will form the basis of requirements for final acceptance.

3. The initial inspection shall be scheduled at least 20 days prior to date of substantial completion.

4. If necessary, the initial inspection will be repeated. Architects and Engineers cost for re-inspection will be paid by the Contractor and deducted from the contract sum by change order.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

3. Submit a certified copy of the Architect’s final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.

4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the work.

5. Submit consent of surety to final payment.

6. Submit a final liquidated damages settlement statement.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Re-inspection Procedure: The Architect will re-inspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.

1. Upon completion of re-inspection, the Architect will prepare a certificate of final acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

2. If necessary, re-inspection will be repeated, and the Architect’s and Engineer’s costs for re-inspection will be paid by the Contractor and deducted from the contract sum by change order.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistant location; provide access to record documents for the Architect’s reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work.

2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.

3. Note related Change Order numbers where applicable.

4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and
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PROJECT CLOSEOUT

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

BARROW COUNTY AMBULANCE FACILITY

JULY 31, 2018

Product Data.
1. Upon completion of the work, submit record Specifications to the Architect for the Owner’s records.

D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer’s installation instructions and recommendations. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.
1. Upon completion of mark-up, submit complete set of record Product Data to the Architect for the Owner’s records.

E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Architect and the Owner’s personnel to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner’s Sample storage area.

F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the Owner’s records.

G. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information.
1. Emergency instructions
2. Spare parts lists
3. Copies of warranties
4. Wiring diagrams
5. Recommended “turn around” cycles
6. Inspection procedures
7. Shop Drawings and Product Data
8. Fixture lamping schedule
CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
BARROW COUNTY AMBULANCE FACILITY  
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PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES
A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner’s personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer’s representatives. Include a detailed review of the following items:
1. Maintenance manuals
2. Record documents
3. Spare parts and materials
4. Tools
5. Lubricants
6. Fuels
7. Identification systems
8. Control sequences
9. Hazards
10. Cleaning
11. Warranties and bonds
12. Maintenance agreements and similar continuing commitments
B. As part of instruction for operating equipment, demonstrate the following procedures:
1. Start-up
2. Shutdown
3. Emergency operations
4. Noise and vibration adjustments
5. Safety procedures
6. Economy and efficiency adjustments
7. Effective energy utilization

3.2 FINAL CLEANING
A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".
B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance
program. Comply with manufacturer’s instructions.

a. Remove labels that are not permanent labels

b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

e. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

C. Pest Control: Engage an experienced exterminator to make a final inspection, and rid the Project of rodents, insects and other pests.

D. Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.

E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner’s property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

1. Where extra materials of value remaining after completion of associated work have become the Owner’s property, arrange for disposition of these materials as directed.

END OF SECTION
PART 1 - GENERAL

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

1.2 SUMMARY
A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.
   1. Refer to the General Conditions for terms of the Contractor’s special warranty of workmanship and materials.
   2. General closeout requirements are included in Section "Project Closeout."
   3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions-2 through -16.
   4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
B. Disclaimers and Limitations: Manufacturer’s disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.3 DEFINITIONS
A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS
A. Related Damages and Losses: When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.
B. Reinstatement of Warranty: When work covered by a warranty has failed and has been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall
be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless or whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.

D. Owner’s Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The Owner reserves the right to refuse to accept work for the Project where a special warranty, certification, or similar commitment is required on such work or part of the work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect’s Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the work, submit written warranties upon request of the Architect.

1. When a designated portion of the work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the work.

B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

1. Refer to individual Sections of Divisions-2 through -16 for specific content requirements, and particular requirements for submittal of special warranties.

C. Form of Submittal: At Final Completion compile two copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer.
Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2” by 11” paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the installer.

2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the Project title or name, and the name of the Contractor.

3. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. Related Sections include the following:

1. Division 1 Section "Summary of Multiple Contracts" for coordinating Project Record Documents covering the Work of multiple contracts.
2. Division 1 Section "Closeout Procedures" for general closeout procedures.
3. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
4. Divisions 2 through 16 Sections for specific requirements for Project Record Documents of products in those Sections.

1.3 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set of marked-up Record Prints and one electronic copy.
2. Number of Copies: Submit copies of Record Drawings as follows:

   a. Initial Submittal: Submit one set of corrected Record electronic files and one set of marked-up Record Prints. Architect will initial and date each marked-up set and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return transparencies and prints for organizing into sets, printing, binding, and final submittal.
b. **Final Submittal:** Submit *one* set of marked-up Record Prints, *three* copies printed from Record Transparencies. Print each Drawing, whether or not changes and additional information were recorded.

c. **Final Submittal:** Submit *one* set of marked-up Record Prints, *one* set of Record CAD Drawing files, *three* copies printed from record plots. Plot and print each Drawing, whether or not changes and additional information were recorded.

1) **Electronic Media:** CD-ROM.

**B. Record Specifications:** Submit *one copy* of Project's Specifications, including addenda and contract modifications.

**C. Record Product Data:** Submit *one copy* of each Product Data submittal.

1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in the manual instead of submittal as Record Product Data.

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**PART 2 - PRODUCTS**

**2.1 RECORD DRAWINGS**

**A. Record Prints:** Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. **Preparation:** Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

   a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

   b. Accurately record information in an understandable drawing technique.

   c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. **Content:** Types of items requiring marking include, but are not limited to, the following:

   a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations below first floor.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Architect for resolution.
3. Owner will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.

C. Record CAD Drawings: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected CAD Drawings of the Contract Drawings, as follows:

1. Format: Same CAD program, version, and operating system as the original Contract Drawings.
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2. Format: **DWG**, operating in **Windows NT** operating system.

3. Incorporate changes and additional information previously marked on Record Prints. Delete, redraw, and add details and notations where applicable.

4. Refer instances of uncertainty to Architect for resolution.

5. Architect will furnish Contractor one set of CAD Drawings of the Contract Drawings for use in recording information.
   a. Architect makes no representations as to the accuracy or completeness of CAD Drawings as they relate to the Contract Drawings.
   b. CAD Software Program: The Contract Drawings are available in **AUTOCAD 2000**.

D. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.

1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.

2. Consult with Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

E. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.

3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.

4. Identification: As follows:
   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS."
   d. Name of Architect.
   e. Name of Contractor.
SECTION 01 78 39
PROJECT RECORD DOCUMENTS

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2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of the manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Drawings, [and] [Product Data] where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Drawings, and Product Data where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use
Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect’s reference during normal working hours.

END OF SECTION 01781
PART 1 - GENERAL

1.01 SCOPE
A. This section shall include all labor, materials, accessories, equipment, and related services for the construction of concrete forms; detailing, fabrication, transportation, storage, handling, and placement of reinforcing; and mix design, testing, and placement of concrete as shown on the drawings and/or specified herein.

Note that the concrete at the building and the apron is to be 5,000 psi, 8” thick concrete with long-strand fiber mesh and reinforcing. Sidewalk can be 3,000 psi, 4” thick concrete.

1.02 REFERENCE STANDARDS
A. The following publications, but referred to in this section by their basic designation, form a part of this section to the extent specified herein or called for on the drawings:
   1. American Concrete Institute (ACI), publications:
      b. Specification for Structural Concrete for Buildings.
      c. Recommended Practice for Measuring, Mixing, and Placing Concrete.
      d. Hot weather Concreting.
      e. Cold Weather Concreting.
      f. Standard Practice for Consolidation of Concrete.
      g. Building Code Requirements for Reinforced Concrete.
      h. Recommended Practice for Concrete Formwork.
      i. Recommended Practice for Shotcreting.
      j. Detailing Manual
   2. Concrete Reinforcing Steel Institute (CRSI), publications:
      a. CRSI-Manual of Standard Practice
      b. CRSI-Placing Reinforcing Bars
   3. American Society for Testing and Materials (ASTM) publications:
      b. Standard Specification for Deformed and Plain Billet - Steel Bars
for Concrete Reinforcement with Supplementary Requirements S1.

c. Standard Specification for Rail Steel Deformed and Plain Bars for Concrete Reinforcement.

d. Standard Specification for Axle Steel Deformed and Plain Bars for Concrete Reinforcement.

e. Standard Method of Making and Curing Concrete Test Specimens in the Field.


g. Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens.

h. Standard Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.


l. Standard Method of Sampling Fresh Concrete.

m. Standard Method of Making and Curing Concrete Test Specimens in the Laboratory.


q. Standard Specifications for Performed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resistant Bituminous Types)

3. American Welding Society (AWS) publication
   a. AWS D1.4-79 Structural Welding Code-Reinforcing Steel.


5. American Institute of Steel Construction (AISC) publications:
   a. Manual of Steel Construction

6. American Institute of Timber Construction (AITC) publications:
   a. Timber Construction Manual
1.03 SUBMITTALS
A. The Contractor shall submit to the Architect five (5) copies of the following information for review:
   1. Curing compound manufacturer’s data sheets.
B. Two copies will be returned to the Contractor marked as follows:
   1. "No Exceptions Taken" - Indicates the information has been reviewed for conformance with contract documents and no exceptions have been taken. Proceed with the work.
   2. "Exceptions Noted" - Indicates that the drawings have been reviewed for conformance with the contract documents and that exceptions have been taken. Contractor may proceed with the work provided he corrects work as noted. Resubmittal will not be required.
   3. "Exceptions Noted - Resubmit" - Indicates that the drawings have been reviewed for conformance with the contract documents and that work may proceed on items to which no exceptions have been taken. After items to which exceptions have been taken are corrected, Contractor shall again submit copies for review.
   4. "Resubmit" - Indicates that the drawings have been reviewed for conformance with the contract documents and are too incomplete or in an unacceptable condition for review. A notation will be made on the shop drawings as to the exceptions taken. Drawings shall be revised and resubmitted for review before proceeding with the work.

1.04 DESIGN OF FORMWORK
A. Responsibility
   1. The design and engineering of the formwork as well as its construction shall be the responsibility of the Contractor.
   2. Where concrete is cast against earth cut or an existing structure, such cut or structure shall be considered a form for which the Contractor shall be responsible.
B. Criteria
   1. Except as specifically called for otherwise herein, all formwork shall meet the requirements of ACI 347, Chapter 4 and 6 of ACI 301 and Chapter 6 of ACI 318.
   2. Specifically the formwork shall be designed as a minimum for the loads and lateral pressure outlined in paragraph 1.2 of ACI 347 and wind loads specified by the Standard Building Code. Design considerations and allowable stresses shall meet the above references and the applicable requirements of the AISC Manual of Steel Construction and the AITC Timber Construction Manual.
1.05 MIX DESIGN

A. Prior to concrete placement of any concrete, the concrete mix design the Contractor proposes to use for each type of concrete shall be submitted to the Architect for review.

B. The Concrete mix shall be proportioned to give a 28-day strength of the properties outlined in the drawings (e.g. 3,000/5000 psi) and other properties as specified herein as determined by laboratory tests in accordance with requirements specified herein.

C. The laboratory or laboratories which design and test the concrete mix shall be obtained by the Contractor, approved by the Architect and paid for by the Contractor.

1.06 TESTING OF CONCRETE

A. A laboratory shall be obtained by the Contractor approved by the Architect and paid for by the Contractor for the purpose of sampling and testing of concrete.

B. The following samples shall be taken at the job site. If any material has been added to the concrete, tests shall be made after material has been added to the concrete.

1. For each 100 cubic yards, or fraction thereof, of concrete three test specimens shall be made and cured in accordance with ASTM C172 and C31. Each set of three cylinders shall have a numerical designation and each cylinder an alphabetical subdesignation. Thus, the first set of three cylinders shall be numbered 1A, 1B, and 1C. One cylinder shall be broken at 7 days and two at 28 days. The average of the two 28-day cylinder breaks shall be considered one test. Cylinders shall be broken in accordance with ASTM C39.

2. For each 100 cubic yards, or fraction thereof, of concrete a slump test shall be made in accordance with ASTM C143 and the density and air content shall be determined in accordance with ASTM C172 and C31.

1.07 SHOP DRAWINGS

A. The Contractor shall furnish drawings, schedules, and details for the fabrication of the reinforcing steel AND the phasing of excavation and new concrete placement. The drawings and details shall be so complete that when used with the contract drawings the reinforcing steel can be properly placed. In addition, shop drawings showing all footing details, CMU details and slab details. All shop related shop drawings to be submitted with a professional engineer’s stamp in this discipline.

B. In case the Contractor is in doubt regarding certain dimensions shown on the contract drawings, or if
there is a discrepancy on the contract plans, the Contractor or his agent shall circle and question such dimensions on his shop drawings. In such cases the dimensions shall be especially checked or supplied by the Architect.

C. All drawings for review must be submitted in five copies. Two sets shall be returned to the Contractor marked as follows:

1. "No Exceptions Taken" - Indicates the material has been reviewed for conformance with contract documents and no exceptions have been taken. Proceed with the work.

2. "Exceptions Noted" - Indicates that the material has been reviewed for conformance with the contract documents and that exceptions have been taken. Contractor may proceed with the work provided he corrects the work as noted. Resubmittal will not be required.

3. "Exceptions Noted - Resubmit" - Indicates that the material has been reviewed for conformance with the contract documents and that exceptions have been taken. After items to which exceptions have been taken are corrected, Contractor shall again submit copies for review.

4. "Resubmit" - Indicates that the material has been reviewed for conformance with the contract documents and is too incomplete or in an unacceptable condition for review. A notation will be made as to the exceptions taken. Material shall be revised and resubmitted for review before proceeding with the work.

E. In case exceptions are noted on one sheet which affect details on other sheets, the exception is to be taken as applying to such other details.

F. Review of shop drawings by the Architect or Engineer shall not constitute an authorization or approval of a change to the contract. Changes from the contract documents must be made by written change order and issued by the Architect.

G. Work must not proceed on items to which exceptions have been taken.

H. The Contractor must check and be responsible for the conforming of all steel reinforcing details shown on shop drawings to those shown on the Contract drawings.

I. All bars shall be shown on shop drawings as to number, size, length, and spacing in a manner similar or complementary to the way they are shown on contract drawings.

1.08 QUALITY CONTROL

A. Should misalignment of forms or screeds or deflection of forms or displacement of reinforcement occur during concrete placing, corrective measures shall be immediately made to the extent that placing
operations shall be stopped and concrete removed from within forms. The corrective measures shall be such as to ensure acceptable lines and surfaces to the prescribed dimensions and cross sections.

B. Any work not meeting the requirements of this section shall be deemed in non-compliance and shall be removed or corrected at no additional expense to the Owner.

C. The Contractor shall prepare for the Architect’s review his proposed method of removal or correcting any work which is in non-compliance prior to commencing with the work.

D. Any work which is in non-compliance and is allowed to remain in place by the Architect shall be made a part of this contract by issuing a change order as set forth in the General Conditions of this specification.

E. Should displacement of reinforcing steel occur during concrete placement, corrective measures shall be immediately made to the extent that placing operations shall be stopped and concrete removed from within the forms.

F. To comply with this specification, concrete shall obtain its design strength at the 28-day break. Any concrete not obtaining its design strength as determined by the 28-day break shall be considered as not complying to this specification.

G. The results of the concrete tests shall be evaluated in accordance with paragraphs 17.2 of ACI Standard 301.

H. If compressive tests fail to meet the specified strength, the following procedures shall be followed: The Architect shall determine if the concrete has been placed in a position of critical structural importance. If the concrete has been placed in a position of critical structural importance, the Contractor shall have core tests made by a testing laboratory approved by the Architect. Core tests shall be done in accordance with ASTM C42 and paragraph 17.3.2 of ACI Standard 301. These core tests shall be taken in each area in question. Such tests shall be paid for by the Contractor. If core tests fail to verify the design strength requirements, the Contractor will have two options:

1. Remove and reconstruct that portion of the structure found to be defective. Removal and replacement will not be undertaken until a plan and procedure has been proposed by the Contractor and approved by the Architect. All such work shall be done at the Contractor’s expense.

2. Have a testing laboratory approved by the Architect conduct a load test on the questionable portion of the structure in accordance with Chapter 20 of ACI Building Code 318. If the test demonstrates that the member or members are not acceptable under the provisions of Chapter 20, Option One becomes mandatory. All costs of the load test shall be paid for by the Contractor.

I. If tests, either by the 28-day break or core tests, have demonstrated that concrete supplied has not met
the strength requirements of the specifications, but the concrete has been permitted to remain in place in
the structure by the Architect, a change order shall be issued as set forth in the General Conditions
Section of these specifications.

PART 2 - PRODUCT

2.01 FORMS
A. Forms for unexposed work or surfaces covered by a non-contact finish.
   1. Where work is to be covered by a non-contact finish or not exposed to view, forms of metal,
      metal and wood, wood, or a pre-engineer forming system will be accepted.
B. Forms for exposed work or surfaces covered by a contact finish.
   1. Where work is to be left exposed, or concrete surface is covered by a contact finish, forms
      shall either be plywood, lined plank, or patented type panels. All plywood shall receive
      non-staining protective coating that affords positive release.
   2. Forms shall not be reused when the surface material delaminates, splits, or becomes marred.

2.02 APPURtenANCES
A. Form Ties
   1. Except for exposed work or Architecturally exposed concrete, snap ties may be used for wall
      forms. Pull ties, which are to be completely removed, or cone type break back ties that
      will leave clean cut holes without fractures, spalls, shallows, depressions, or other
      disfigurations shall be used for all exposed work, and Architecturally exposed concrete.
B. Expansion Joint Material
   1. Expansion joint material shall meet ASTM C1751.

2.03 REINFORCING
A. Reinforcing steel shall meet ASTM A-615, ASTM 616, or ASTM 617, and develop 60,000 psi at yield.
B. Wire mesh shall meet ASTM A-185.

2.04 ACCESSORIES
A. Bar supports shall meet the requirements of CRSI, Manual of Standard Practice, unless specified
   otherwise herein.
B. Legs of all accessories used over exposed concrete surfaces shall have that portion of the accessories in
contact with the form coated with plastic, or the accessory shall be of stainless steel.

2.05 CEMENT

A. All cement used on this construction for exposed concrete shall be one brand of Portland cement. All cement shall be Type 1 and meet the requirements of ASTM 150.

2.06 AGGREGATES

A. Samples of both coarse and fine aggregates shall be selected by the Contractor at the beginning of the work, and following approval of laboratory tests, shall be used throughout the work as standards to which the aggregate must conform.
   1. Fine aggregates shall conform to ASTM C33.
   2. Coarse aggregates for regular weight concrete shall conform to ASTM C33 and shall be sized within the limits as established by Table 2, 1" to #4.

2.07 WATER

A. Water shall be clean, free from oil, acid, vegetable matter, alkalies or salts.

2.08 ADMIXES

A. Admixes shall conform to ASTM C-494 and not contain any chloride ions.

2.09 AIR ENTRAINMENT

A. Air entraining agent shall conform to ASTM C260.

2.10 ABRASIVE AGGREGATES

A. Abrasive aggregates shall be aluminum oxide or carborundum and have a hardness factor of 9 mohs.

2.11 CURING COMPOUND

A. Curing compound for unformed surfaces without a surface applied cementitious bonding agent or fill.
   1. Curing compound shall be formulated by the manufacturer not to interfere with the bond of or adhesion of resilient floor coverings, paints, sprayed on or applied finishes, water-proofing materials, other types of finish, or curing compounds.
   2. Curing compound shall be a combination sealer-hardener and dust-proofer.
3. Curing compound shall be a membrane forming resin containing 18% minimum solids with a fugitive dye meeting the requirements of ASTM C309, Type 1-D, Class A.

4. The following products are approved:

- Spartan Cote - The Burke Company
- Rez. Seal - Euclid
- SealCo - Gifford Hill
- Clearbond - Guardian
- Dress & Seal #18 - L&M Construction Chemicals
- Clear Seal 150 - AC Home
- MB429 - Master Builders
- Kure-N-Seal, 0800 - Sonneborn
- C5309 - WR Meadows

B. Curing compounds for formed concrete surfaces exposed to view.

1. Curing compound shall be formulated not to interfere with the bond or adhesion of any applied coating or covering.

2. Curing compound shall be a penetrating compound with a fugitive dye meeting the requirements of ASTM C309, Type 1D.

3. The following products are approved.

- Cure Concentrate - The Burke Co
- Eucosil - Euclid
- L&M Cure - L&M Construction Chemicals
- Horne One Kote - AC Home
- Master Seal - Master Builders

2.12 PROPORTIONS

A. All concrete shall provide the ultimate compressive strength at 28 days, as determined by laboratory cured cylinders, as shown on the drawings. All mix designs shall be proportioned in accordance with one of the following methods.

1. ACI 318, Section 4.3, Proportioning on the basis of field experience and/or trial mixtures.

2. ACI 318, Section 4.4, Proportioning by water cement ratio.

B. The mix shall be so proportioned so that the average of any three consecutive strength tests shall be equal to or greater than the strength specified on plans, and no test shall have a value less than the
C. Minimum cement content for regular concrete shall be as follows:

1. **REGULAR WEIGHT CONCRETE:**

   - 3,000 psi concrete 498# (5.3 bags)
   - 5,000 psi concrete 705# (7.5 bags)
   - For pump mixes add 47# (0.5 bags) to the above quantities.

D. The water-cement ratio of the mix shall be established in the design and shall be based on the established relationship between the water-cement ratio and the strength of concrete shall be such as to produce the specified strength of the concrete with the least amount of water consistent with the workability of the mix. Surface water contained in the aggregate shall be included as part of the mixing water in computing the water content. The design shall provide for a slump range of 3” minimum, 5” maximum.

E. To each sack of cement the following amount of admix shall be provided:

1. **Air temperature above 80 degrees F**

   - 3 oz. - Master Builders - Pozzolith 300R
   - 3 oz. - Protex PDA 25XL
   - 2 oz. - Sika Chemical Co. - Plastement
   - 2 oz. - Gifford Hill PSI - Normal
   - 2 oz. - Castle Chemical Corp. - Chemstrong R
   - 2 oz. - Construction Chemical Co - Trisene N
   - 5 oz. - Grace - WRDA-79

2. **Air Temperature between 50 and 80 degrees F.**

   - 3 oz. - Master Builders Pozzolith 300N
   - 3 oz. - Protex PBA 25R
   - 3 oz. - Sika Chemical Do. - Plastement NS
   - 3 oz. - Gifford Hill PSI - Retarder
   - 3 oz. - Castle Chemical Corporation - Chemstrong A
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3 oz. - Construction Chemical Co - Trisene R
7.5 oz. - Grace - WRDA

3. Air temperature below 50 degrees F.

8 oz. - Master Builders - Pozzutec 20
8 oz. - Sika Chemical Co. - Plastorcrete 161 PC
12 oz. - Grace - Darex

2.13 FABRICATION

A. All reinforcing shall be fabricated. Fabrication shall be in accordance with applicable sections, ACI 301, ACI 318, ACI-SP66, and CRSI Manual of Standard Practice. All bends shall be made cold around pins having a diameter of not less than that specified in the bend test of the applicable ASTM specifications. Heating bars for bending is prohibited without the written approval of the Architect.

B. Reinforcement shall be correct in length and size and bent as prescribed by contract drawings or specifications.

PART 3 - EXECUTION

3.01 PREPARATION

A. Excavations

1. Where excavations exceeding a depth of five feet are to be made to install the foundations or any part of the structure of this building or any retaining walls on the site, the back slope of such excavation shall be at an incline not exceeding one vertical to two horizontal unless such backslope is sheeted and braced. If sheeting and bracing are to be provided, such sheeting and bracing shall be designed by an Engineer registered in the state where the project is located. Such sheeting and bracing shall be designed to resist the pressures given on pages 14-32 of the CRSI Design Handbook unless more specific pressures are determined by a Registered Soils Engineer. The cost of such design work and installation shall be paid for by the Contractor at no additional cost to the Owner.

2. No excavation shall be made below a line extending downward and away from any foundation
grade slab or other building element on a slope one vertical or two horizontal, unless such
foundation, grade slab, or other building element is under pinned. The underpenning shall be
designed by an Engineer registered in the state where the project is located. The cost of such
design work and installation shall be paid for by the Contractor at no additional cost to the
Owner.

B. Treat excavated soil for termites as required by industry standards.

C. Care of Materials
   1. Shipping, storage and handling of reinforcing steel shall be in such a manner as to prevent
damage.
   2. Straightening of bars bent in shipping or handling will not be undertaken except when so
directed by change order.

D. Cleaning
   1. Reinforcing shall be cleaned of grease, dirt, concrete, or other foreign substances.

3.02 INSTALLATION

A. Construction of Forms
   1. All forms shall be built and secured in place to carry the dead weight of the concrete as a
liquid without deflection or distortion exceeding the requirements of ACI 347. Formwork shall
be built watertight, true to position and direction. Formwork shall be constructed so as to
ensure the concrete surfaces will conform to the tolerances given in ACI 347.
   2. All concrete surfaces that are to be left exposed on interior and exterior of the building shall
have the forms so constructed that when removed they will produce a uniform smooth surface
free from misalignment and imperfections.
   3. Where new concrete is placed above a previous placement, the joint between new and old
work, as well as the face of the concrete surface, must be aligned.
   4. All wood forms shall be built of sound lumber. Clean and remove nails from form material
before reusing or when using second-hand lumber.
   5. Unless indicated otherwise on the drawings, all columns shall be centered on the foundations
supporting them within a tolerance of 2”.
   6. Where earth is too unstable to serve as a form for foundations or walls, wood forms shall be
provided.
   7. Box out all slots, recesses, or openings for work of all trades.
   8. Build bulkheads with keys in walls and footings at construction joints in concrete.
9. Bevel strips shall be placed at all outside corners of exposed work unless shown otherwise on architectural details.

10. All overhanging edges shall be provided with a 1/2” quarter round drip 2” from the edge.

B. Installing other material in forms
   1. Expansion joint fillers shall be installed in the forms, where called for on plans, in advance of the pour. 8d nails of 2'-0” o.c. shall be placed through the filler so that when concrete is placed, the nails will be embedded so as to lock the filler in place.
   2. Compact earth fill under slabs on grade in eight inch layers with mechanical equipment to obtain a compaction of 95% standard proctor, unless specified otherwise.
   3. Provide 6 mil polyethylene film vapor barrier under all slabs on grade.
   4. Fill for slabs on grade shall be #57 stone, 4” thick, where shown on drawings.

C. Placement of Reinforcement
   1. Reinforcement shall be placed to conform with the recommendations of ACI 301, ACI 318, and CRSI Manual of Standard Practice.
   2. Bars shall not be cut or bent in the field unless specifically called for on detail drawings.
   3. Bars with kinks or bends not shown on detail drawings shall not be used.
   4. Contract drawings shall take precedence over Contractor’s working drawings unless otherwise authorized by written change order.
   5. Contract drawings shall be referred to by the steel setter for details governing placing.
   6. Vertical steel shall be lapped 30 diameters at splices unless specifically called for otherwise on plans.
   7. Steel dowels for successive work shall be wired in the prescribed position before placing concrete. The "sticking" of dowels after placing concrete will not be permitted.
   8. Hooks may be turned flat to facilitate placement.
   9. Concrete covering for reinforcing steel shall be as follows unless shown otherwise on drawings:
      a. Concrete cast against and permanently exposed to earth: 3"
      b. Concrete exposed to earth or weather:
         #6 through #18 bars: 2"
         #5 bar, W31 or D31 wire, and smaller: 1-1/2"
      c. Concrete not exposed to weather or in contact with ground:
         Slabs, walls
10. No splicing of main reinforcing steel will be permitted unless shown otherwise on plans. Bars marked continuous shall be lapped 30 diameters at splices, and at corner conditions corner bars shall be provided.

11. No reinforcing shall be cut in the field unless it is called for to be cut on the reviewed shop drawings.

12. No reinforcing shall be bent in the field unless it is called for to be bent on the reviewed shop drawings.

D. Placement of Wire Mesh

1. Welded wire fabric shall be lapped 6” at both side and end laps unless shown otherwise on drawings and wire together at 18”o.c. Mesh shall extend to within 2” of sides and end of slabs.

3.03 WELDING OF REINFORCEMENT

A. All reinforcing bars which are to be welded shall be welded in accordance with AWS D1.4.

3.04 MIXING

A. All materials shall be measured and mixed in a machine. Mixing and transporting shall meet ASTM C94. The materials shall first be mixed dry and the water then added by measurement.

B. Mixing time shall begin when the water is added to the mix.

C. Water shall not be added to the mix at the job site except under the direction of the laboratory responsible for testing (paragraph 1.06). The laboratory shall instruct that a fixed amount of cement shall be added to maintain the water-cement ratio. The mixer shall be turned 50 revolutions after the addition of water.

D. A slump test shall be made of any concrete to which water has been added to ascertain that the slump does not exceed 5” for regular mixes and 6” for pump mixes.

E. A record shall be kept of any concrete to which water has been added, and the record shall show the results of the slump test.

3.05 PREPARATION

A. Before the placing of any concrete the footing trenches shall be drained of water, any mud film removed and any loose dirt lifted out.
B. Before placing concrete in forms the forms shall be cleaned and all debris removed. All reinforcing shall be checked to be sure that no reinforcing is touching the form or pan sides. A man shall be designated during the pour to keep the steel in the prescribed position.

C. Before placing any concrete it shall be determined that all conduits, pipes, sleeves, inserts, hangers, steel equipment, grounds, anchors, and other work that is to be built into the concrete is located and installed. All such items shall be so placed as not to interfere with the reinforcing steel.

D. No concrete shall be placed until the Architect has observed the reinforcement.

E. Wood board forms shall be soaked with water first before the concrete is placed.

F. Metal forms shall be oiled before reinforcement is placed.

G. All reinforcement shall be supported and fastened in prescribed position and protected against displacement during pouring operations.

H. A workman shall be designated to lift mesh reinforcing off the ground or the bottom of forms as concrete is placed.

I. Concrete temperature at time of placement shall be as follows:

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Concrete Temperature</th>
<th>F Degrees</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Maximum</td>
<td>Minimum</td>
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<tr>
<td>Above 75</td>
<td>90</td>
<td>75</td>
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<tr>
<td>50 - 75</td>
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<td>75</td>
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<tr>
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<td>90</td>
<td>65</td>
</tr>
<tr>
<td>Below 0</td>
<td>90</td>
<td>70</td>
</tr>
</tbody>
</table>

J. Cold Weather Concreting

1. Cold weather concreting procedures shall be used when temperature at job site is 40 degrees or below at time of concrete placement as follows:
   a. Heat ingredients as necessary to produce a mix temperature at time of placement as specified herein.
   b. Concrete shall be heated, insulated, and protected as necessary to maintain a concrete temperature of 40 degrees F minimum for 72 hours after placement.
c. Accelerating agents shall not be used unless approval from the Architect has been obtained.

2. ACI 306R should be used as a guide in determining proper procedures for cold weather concreting.

K. Hot Weather Concreting

1. Hot weather concreting procedures shall be used when temperature at job site is 75 degrees F or above at time of concrete placement or wind or humidity is such to result in shrinkage cracking as follows:
   a. Cool materials necessary to produce a mix temperature at time of placement as specified herein.
   b. Mix time shall not exceed one hour from time of initial mix.
   c. Concrete once discharged from truck shall be placed in its final position within 30 minutes from time of discharge.
   d. Placed concrete shall be cooled or protected as necessary to maintain a concrete temperature of 120 degrees maximum for 48 hours after placement.
   e. Retarding agents shall not be used unless approval from the Architect has been obtained.

2. ACI 305R should be used as a guide in determining proper procedures for cold weather concreting.

3.06 TRANSPORTING CONCRETE

A. Concrete shall be handled from the mixer to the place of final deposit by means of carts, buggies, conveyor, or pump in accordance with ACI 304. If the concrete is to be transported more than fifty feet in carts or buggies they shall be equipped with pneumatic tires. Concrete delivered to the carts, buggies, or conveyors from spouts, troughs or mixer trucks shall not have a free fall of more than three (3) feet. Prevent separation or loss of ingredients while transporting the concrete.

3.07 CASTING

A. It shall be the responsibility of the Contractor to consider the temperature and humidity in scheduling the time interval between mixing and placing. No partially hardened concrete shall be placed. Placement shall meet the requirements of ACI 304.
B. Special care shall be observed to avoid concrete spilling over forms when placing.

C. Placing of concrete shall be rapid and continuous between construction joints. Concrete shall not be placed when the sun, wind, heat, or humidity prevent placement and consolidation.

D. Special care shall be taken in spading concrete around gangs of parallel conduit.

E. Concrete shall not be placed within twenty-five feet of workmen placing or securing reinforcement.

F. Internal type mechanical vibrators and hand spading shall be used to consolidate the concrete and produce a dense concrete free from voids and honeycombs. Care shall be taken that vibration is not applied long enough to separate the ingredients. Use and type of vibrators shall conform to ACI 309.

G. Hand spreading shall be done with shovels not rakes.

H. Before depositing the new concrete on or against concrete that has hardened, the forms shall be retightened, the surface of the hardened concrete roughened, cleaned of foreign matter than laitance and moistened with water. To ensure mortar at the juncture of the hardened and newly deposited concrete, the cleaned and moistened surface of the hardened concrete, including vertical and inclined surfaces, shall first be slushed with a coating of neat cement grout against which the new concrete shall be placed before the grout has attained its initial set. Before starting to place concrete in walls and columns a uniform layer of grout two inches thick shall be placed at the bottom of the forms or on top of the hardened concrete. The grout shall consist of one part cement and two parts sand with enough water to make a thick consistency.

I. All horizontal surfaces shall be screeded to an even surface by the use of a straight edge and screeding strips set at the level called for on plans. Screeds shall be of such type and so arranged as not to interfere with the top slab steel. Finish is specified in a following section.

3.08 PROTECTION

A. Workmen shall not walk on concrete during placing or finishing with any earth or foreign matter on footgear.

B. All freshly placed concrete shall be protected from damage or injury due to water, falling objects, persons or anything that might mar, discolor, or injure the finish surface of the concrete. Any surfaces that are damaged due to lack of protective measures shall be removed and replaced with fresh concrete at the expense of the Contractor.

3.09 FLOOR FINISHING

A. Floors, except those requiring a special finish, shall be finished as follows:
1. The surface of all concrete slabs, after screeding, shall be worked with a float in a manner which will compact the concrete and produce a surface free of depressions or inequalities of any kind. Test for grade (or level) and correct by removing excess or adding and compacting additional concrete.

2. All floor slabs, except in areas dropped to receive finish, shall receive a steel trowel finish as follows:
   a. After screeding and floating slab surface and when concrete has hardened to prevent excess fines from working to the surface and surface water has disappeared, steel trowel slab to a smooth surface free from defects.
   b. After initial troweling and when surface produces a ringing sound as trowel is moved across surface, steel trowel the slab a second time. The drying of the surface moisture must proceed naturally and must not be hastened by sacking or dusting on of sand or cement.

3. Areas which are dropped to receive a finish, after floating, shall be roughened with a very coarse broom.

4. All concrete ramps, docks, and stair treads shall be dusted with abrasive aggregates at the rate of 25 pounds per 100 square feet. Abrasive aggregates shall be worked into concrete surface by trowelling.

3.10 CURING OF CONCRETE

A. Unformed Horizontal Surfaces

1. As soon as sheen of surface water has disappeared and the surface can be walked upon without damage (one or two hours) concrete surfaces shall be cured as follows:
   a. All interior slabs with resilient tile, carpet or left exposed shall be cured with the specified curing and sealing compound.
   b. All other interior slabs shall be cured with the specified dissipating resin type curing compound.
   c. All vertical surfaces shall be cured with the specified curing and hardening compound when forms are removed prior to completion of the curing period.
   d. The curing compounds must be applied immediately after final finishing.
   e. Where required, the curing and hardening compounds shall be applied to vertical surfaces immediately after forms have been removed.
f. Sisalkraft paper, placed in a manner approved by the Engineer, may be used for any surface indicated above to be cured with the dissipating resin compound or the curing and hardening compound.

2. Surface traffic shall not be permitted on curing compound until curing compound is completely dry.

B. Formed Surfaces

1. Formed surfaces which are rubbed after forms are removed shall be covered with the curing and hardening compound at manufacturer’s specified rate immediately after rubbing is completed.

2. Formed surfaces which are repaired or patched shall be covered with the curing and hardening compound at manufacturer’s specified rate immediately after repairing and/or patching is complete.

3. No coating, sealer or other applied material shall be placed on concrete which received a curing compound until forty-five (45) days after curing compound has been in place.

3.11 TOLERANCES

A. Tolerances for concrete floor slabs shall meet the requirements of ACI 117, Class BX Slabs.

B. Where slabs abut at joints the differential elevation between abutting slabs shall be less than 1/16 inch.

3.12 EXPOSED CONCRETE SURFACES

A. Exposed concrete surfaces shall be finished as follows:

1. Surfaces shall be rubbed smooth with carborundum brick or other abrasive within 36 hours after forms are removed. Surfaces shall be wetted and rubbed until a uniform color and texture is produced. No cement grout or slush shall be used other than the cement paste drawn from the green concrete itself by the rubbing process.

2. The first panel that is to be finished shall be done in the presence of the Architect. When it is approved by the Architect, it shall serve as a standard to which all additional architecturally finished concrete shall conform.

3. Edges of exposed beams and columns shall be pointed up to present a straight, square appearance.
3.13  REMOVAL OF FORMS
A.   Removal

1. Care shall be taken in the removal of the forms not to damage the surface of the concrete. Immediately after the forms are removed, the Architect shall examine the concrete and determine the extent and magnitude of any damaged or imperfect work. The Architect shall determine what work shall be patched and what work shall be removed and rebuilt. Patching, where allowed, shall be done immediately. Patching shall be done as specified in these specifications.

2. The removal of shoring and stripping of forms shall be the responsibility of the Contractor. In no case shall forms for columns or walls be removed in less than two days.

3. All form ties shall be broken back at least 1/2” from the surface of concrete, and pull ties shall be removed.

3.14  PATCHING AND CORRECTION OF DEFECTIVE WORK
A. Any concrete which is not within the allowable tolerances as set forth in ACI 347, Section 203.1 shall be considered as not conforming to these specifications. Any concrete which is not formed as shown on the plans or is out of alignment or level or shows a defective surface shall be considered as not conforming to these specifications.

B. Any concrete as described above shall be removed from the job by the Contractor at his expense unless the Architect grants permission to patch or repair the defective area. Permission to patch or repair any such area shall not be considered a waiver of the Architect’s right to require complete removal of the defective work if the patching does not, in his opinion, obtain the quality and appearance of the work as specified.

C. Within 24 hours after removing form, all concrete surfaces shall be inspected by the Architect. With the Architect’s approval any honeycombs, voids, stone pockets and tie holes shall at once be patched before the concrete is dry. Defective areas shall be chipped away to a depth of not less than one inch (1”) with the edges perpendicular to the surface. The area to be patched and a space at least six inches (6”) wide entirely surrounding it shall be dampened with water to prevent absorption of water from the patching mortar. The specified bonding compound shall be applied to the damp concrete.

D. The patching shall be made of the same material and of the same proportions as used for the concrete except that the coarse aggregate shall be omitted. The amount of water used in mixing the mortar shall
be consistent with the requirements of handling and placing. The mortar shall be retempered without the addition of water by allowing to stand for a period of one hour during which hour it shall be mixed with a trowel to prevent setting.

E. After the bonding compound has dried, the mortar shall be compacted into place. Every hole and void shall be filled solid and the mortar screeded off to leave the patch slightly higher than the surrounding surface. It shall then be left undisturbed for a period of one to two hours to permit initial shrinkage before being finally finished. The patch shall be finished in such a manner to match the adjoining surface.

F. Where patching is not accomplished within 24 hours after removal of forms, the shotcrete method of applying concrete under pressure shall be used. Application of shotcrete shall meet ACI 506.

G. Where concrete or concrete work does not conform to the plans or to the specifications and is condemned by the Architect, procedures and plans covering removal and rebuilding or other corrective measures shall be submitted by the Contractor to the Architect before removal and rebuilding is begun. The cost of such plans, as well as the cost of corrective work or removal and rebuilding shall be at the Contractor's expense.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section includes the following products manufactured in accordance with SDI Recommended Standards:
   1. Doors: Seamless, hollow or composite construction standard steel doors for interior and exterior locations.
   2. Frames: Pressed steel frames for doors, transoms, sidelights, mullions, interior glazed panels, and other interior and exterior openings of following type:
      a. Welded unit type
   3. Assemblies: Provide standard steel door and frame assemblies as required for the following:
      a. Labeled and fire rated.
   4. Provide factory primed doors and frames to be field painted.
   5. Refer to drawings for specialty doors at vaults, detention, etc.
B. Painting and special coating of primed doors and frames is specified in Division 9.
C. Wood doors are specified in another Division 8 Section.
D. Door hardware is specified in another Division 8 Section.
E. Glass and Glazing ARE TO BE TEMPERED IN ALL DOORS.
F. Building in of anchors and grouting of frames in masonry construction is specified in Division 4.

1.3 SUBMITTALS
A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
B. Product data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.
C. Shop drawings showing fabrication and installation of standard steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
   1. Provide schedule of doors and frames using same reference numbers for details and openings as those on contract drawings.
   2. Indicate coordinate of glazing frames and stops with glass and glazing requirements.
D. Label Construction Certification: For door assemblies required to be fire-rated and exceeding limitations of labeled assemblies, submit manufacturer's certification that each door and frame assembly has been constructed to conform to design, materials and construction equivalent to requirements for labeled construction.

1.4 QUALITY ASSURANCE
A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications Standard Steel Doors and Frames" ANSI/SDI-100 and as herein specified.
B. Fire-Rated Door Assemblies: Units that comply with NFPA 80, are identical to door and frame assemblies whose fire resistance characteristics have been determined per ASTM E 152 and which are labeled and listed by UL, Factory Mutual, Warnock Hersey, or other testing and inspecting organization acceptable to
authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage.
B. Inspect doors and frames upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.
C. Store doors and frames at building site under cover. Place units on minimum 4-inches high wood blocking. Avoid use of non-vented plastic or canvas shelters which could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4-inches space between stacked doors to promote air circulation.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS
A. Manufacturer: Subject to compliance with requirements, provide standard steel doors and frames by one of the following:

1. Standard Steel Doors and Frames:
   a. Amweld Building Products, Inc.
   b. Ceco Corp
   c. Copco Door Co.
   d. Curries Company
   e. Deansteel Manufacturing Co.
   f. Fenestra Corp
   g. Kewanee Corp
   h. Mesker Door Co.
   i. Pioneer Industries
   j. Premier Products, Inc. (Formerly Dittco)
   k. Republic Builders Products
   l. Steelcraft Manufacturing Co.
   m. Willco Hollow Metal

2.2 MATERIALS
A. Hot-Rolled Steel Sheets and Strips: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.
B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.
C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, or drawing quality, ASTM A 642, hot dipped galvanized in accordance with ASTM A 525, with A60 or G60 coating designation, mill phosphatized.
D. Supports and Anchors: Fabricate of not less than 18-gage sheet steel; galvanized where used in galvanized frames.
E. Inserts, Bolts, and Fasteners: Manufacturer’s standard units. Where items are to be built into exterior walls, hot-dip galvanize in compliance with ASTM A 153, Class C or D as applicable.

F. Shop Applied Paint: Apply after fabrication.
   1. Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints complying with ANSI A224.1, "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames."

2.3 DOORS
   A. Provide metal doors of types and styles or grades and models indicated on drawings or schedules.
   B. Provide metal doors of SDI grades and models specified below or as indicated on drawings or schedules:
      1. Interior Doors: ANSI/SDI-100, Grade II, heavy-duty, Model 3 or 4, minimum 18-gage cold-rolled sheet steel faces.
      2. Exterior Doors: ANSI/SDI-100, Grade III, extra heavy-duty, Model 4, minimum 16-gage galvanized steel faces.

C. Door Louvers: Provide sightproof stationary louvers for interior doors where indicated, constructed of inverted V-shaped blades formed of 24-gage cold-rolled steel set into minimum 20-gage steel frame.

2.4 FRAMES
   A. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 16-gage cold-rolled steel.
      1. Fabricate frames with mitered, coped, or welded corners.
      2. Form exterior frames from 14-gage galvanized steel.
   B. Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of singe-door frames and 2 silencers on heads of double-door frames.

2.5 FABRICATION
   A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer’s plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site. Comply with ANSI/SDI-100 requirements.
      1. Internal Construction: Manufacturer’s standard honeycomb, polyurethane, polystyrene, unitized steel grid, vertical steel stiffeners, or rigid mineral fiber core with internal sound deadener on inside of face sheets where appropriate in accordance with SDI standards.
      2. Clearances: Not more than 1/8 inch at jambs and heads except between non-fire-rated pairs of doors not more than 1/4 inch. Not more than 3/4 inch at bottom.
   B. Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from only cold-rolled steel.
   C. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames."
   D. Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel.
   E. Fabricate exterior doors, panels, and frames from galvanized sheet steel in accordance with SDI-112. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gage inverted steel channels.
   F. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
   G. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled,
provide doors fabricated as thermal insulating door and frame assemblies and tested in accordance with ASTM C 236 OR ASTM C 976 on fully operable door assemblies.

1. Unless otherwise indicated, provide thermal-rated assemblies with U factor of 0.41 Btu/(hr x sq ft x deg F.) or better.

H. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware in accordance with final Door Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 Series Specifications for door and frame preparation for hardware.

I. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at project site.

J. Locate hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Builder's Hardware on Standard Steel Doors and Frames," published by Door and Hardware Institute.

K. Shop Painting: Clean, treat, and paint exposed surfaces of steel door and frame units, including galvanized surfaces.
   1. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.
   2. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

L. Glazing Stops: Minimum 20 gage steel.
   1. Provide non-removable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
   2. Provide screw applied removable glazing beads on inside of glass, louvers, and other panels in doors.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.

B. Placing Frames: Comply with provisions of SDI-105 "Recommended Erection Instructions For Steel Frames," unless otherwise indicated.
   1. Except for frames located at existing concrete, masonry or drywall installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.
   2. In masonry construction, locate 3 wall anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry Tee anchors.
   3. At existing concrete or masonry construction, provide 3 completed opening anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb, set frames and secure to adjacent construction with bolts and masonry anchorage devices.
   4. Install fire-rated frames in accordance with NFPA Standard No. 80.
   5. In metal stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels.
   6. In closed steel stud partitions, attach wall anchors to studs with screws.

C. Door Installation: Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI-100.
1. Install fire-rated doors with clearances as specified in NFPA Standard No. 30.

3.2 ADJUST AND CLEAN
A. Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
B. Final Adjustments: Check and readjust operating hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION
SECTION 08 71 10
FINISH HARDWARE

CARTER WATKINS ASSOCIATES ARCHITECTS, INC. 08 71 10-1
BARROW COUNTY AMBULANCE FACILITY
JULY 31, 2018

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:
A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to the work of this section.

PROVIDE PANIC HARDWARE ON EXTERIOR DOOR.

ALL HARDWARE TO BE US10 FINISH.

1.02 DESCRIPTION OF WORK
A. Definition: "Builders Hardware" includes items known commercially as builders hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frames.

B. Extent of finish hardware required is to be scheduled by hardware supplier based on the location and operation of each door. The Architect and Owner will review and verify the function of each and every door in the facility.

C. Types of finish hardware required include the following:
   1. Hinges
   2. Pivots
   3. Lock cylinders and keys
   4. Lock and latch sets
   5. Bolts
   6. Exit devices
   7. Push/pull units
   8. Closers
   9. Overhead holders
  10. Miscellaneous door control devices
  11. Door trim units
  12. Protection plates
  13. Weatherstripping, door seals
  14. Thresholds
  15. Electronic Security Products
  16. Silencers
1.03 QUALITY ASSURANCE:
A. Manufacturer: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from only one manufacturer, although several may be indicated as offering products complying with requirements.
B. Supplier: A recognized architectural finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project’s vicinity for a period of not less than 2 years, and who is, or who employs an experienced architectural consultant who is available, at reasonable times during the course of the work, for consultation about project’s hardware requirements, to Owner, Architect and Contractor.
C. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware which has been tested and listed by UL or FM for types and sizes of doors required and complies with requirements of door and door frame labels.
   1. Where emergency exit devices are required on fire-rated doors (with supplementary marking on doors’ UL or FM labels indicating “Fire Door to be Equipped with Fire Exit Hardware”) provide UL or FM label on exit devices indicating “Fire Exit Hardware.”

1.04 SUBMITTALS
A. Product Data: Submit manufacturers technical product data for each item of hardware in accordance with Division 1 section “Submittals”. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.
B. Hardware Schedule: Submit a hardware schedule in manner indicated below PREPARED BY A CERTIFIED, LICENSES HARDWARE SPECIFIER. Coordinate hardware with doors, frames, and related work to ensure proper size, thickness, hand, function and finish of hardware.
C. Final Hardware Schedule Content: Based on finish hardware indicated, organize hardware schedule into “hardware sets” indicating complete designations of every item required for each door or opening. Include the following information:
   1. Type, style, function, size and finish of each hardware item.
   2. Name and manufacturer of each item.
   3. Fastenings and other pertinent information.
   4. Location of hardware set crossed-referenced to indications on Drawings both on floor plans and in door and frame schedule.
   5. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
6. Mounting locations for hardware.
7. Door and frame sizes and materials.

D. Submittal Sequence: Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule.

E. Samples: Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule.
   1. Samples will be returned to the supplier. Units which are acceptable and remain undamaged through submittal, review and field comparison procedures may, after final check of operation, be used in the work, within limitations of keying coordination requirements.

F. Templates: Finish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.

1.05 PRODUCT HANDLING:

A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.

B. Packaging of hardware, is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.

C. Inventory hardware jointly with representatives of the hardware supplier and the hardware installer until each is satisfied that the count is correct.

D. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.

E. Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling and installation of hardware items which are not immediately replaceable, so that completion of the work will not be delayed by hardware losses, both before and after installation.
SECTION 08 71 10
FINISH HARDWARE

CARTER WATKINS ASSOCIATES ARCHITECTS, INC. 08 71 10-4
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2.01 SCHEDULED HARDWARE

HARDWARE IS TO MATCH BULLOCH COUNTY’S HARDWARE STANDARD - VERIFY WITH OWNER.

A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware is to be determined by the door use and location in conjunction with the Hardware Allowance contained in this Project Manual.

B. Manufacturer’s product designations: One or more manufacturers are listed for each hardware type required. An asterisk (*) after a manufacturer’s name indicates whose product designation is used in the Hardware Schedule for purposes of establishing minimum requirements. Provide either the product designated, or, where more than one manufacturer is listed, the comparable product of one of the other manufacturers which comply with requirements including those specified elsewhere in this section.

2.02 MATERIALS AND FABRICATION:

A. Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.

B. Manufacturer’s Name Plate: Do not use manufacturer’s products which have manufacturer’s name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Architect.

1. Manufacturer’s identification will be permitted on rim of lock cylinders only.

C. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer’s standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for the application hardware units by applicable ASNI A156 series standard for each type hardware item and with ASNI A156.18 for finish designations indicated. Do not furnish “optional” materials or forming methods for those indicated, except as otherwise specified.

D. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.

E. Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including “prepared for paint” in surfaces to receive painted finish.
SECTION 08 71 10
FINISH HARDWARE

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F. Provide concealed fasteners for hardware units which are exposed when door is closed, except to extent no standard units of the type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on the opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each thru-bolt or use sex screw fasteners.

G. Tools and Maintenance Instructions for Maintenance: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner’s continued adjustment, maintenance, and removal and replacement of finish hardware.

2.03 HINGES, BUTTS, AND PIVOTS:
A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
B. Screws: Furnish Phillips flat-head or machine screws for installation of units, except furnish Phillips flat-head or wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.
C. Hinge Pins: Except as otherwise indicated, provide continuous hinges per door specification.
D. Tips: Flat button and matching plug, finished to match leaves, except where hospital tip (HT) indicated.
E. Number of hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90” or less in height and one additional hinge for each 30” of additional height.
F. Size of hinges: Unless otherwise scheduled, size hinges in accordance with the published recommendations of the specified manufacturer.

2.04 LOCK CYLINDERS AND KEYING:
A. General: Supplier will meet with Owner to finalize keying requirements and obtain final instructions in writing.
B. Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), integrated with Owner’s existing system.
C. Equip locks with high security cylinders which comply with performance requirements for Grade 1 cylinders as listed in ANSI A156.5 and which have been tested for pick and drill resistance requirements of UL 437 and are UL listed.
D. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
E. Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.

F. Comply with Owner’s instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.

G. Key Material: Provide keys of nickel silver only.

H. Key Quantity: Furnish 3 change keys for each lock; 5 master keys for each master system; and 5 grandmaster keys for each grandmaster system.

I. Deliver keys to Owner’s representative.

2.05 LOCKS, LATCHES, AND BOLTS:

A. Strikes: Provide manufacturer’s standard wrought box strike for each latch or lock bolt.

1. Provide dust-proof strikes for foot bolts, except where special threshold construction provides non-recessed strike for bolt.

2. Provide roller type strikes where recommended by manufacturer of the latch and lock units.

B. Lock Throw: Provide 3/4” minimum throw of latch and 1” throw of deadbolt. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.

C. Flush Bolt Heads: Minimum of 1/2” diameter rods of brass, bronze, or stainless steel, with minimum 12” long rod for doors up to 7’0” in height. Provide longer rods as necessary for doors exceeding 7’0” in height.

D. Exit Device Dogging: Except on fire-rated doors, wherever closers are provided on doors equipped with exit devices, equip the units with keyed dogging device to hold the push bar down and the latch bolt in the open position.

E. Rabbeted Doors: Where rabbeted door stiles are indicted, provide special rabbeted front on lock and latch units and bolts.
2.06 PUSH/PULL UNITS:

A. Concealed Fasteners: Provide manufacturer’s special concealed fastener system for installation; through-bolted for matched pairs, but not for single units.

2.07 CLOSERS AND DOOR CONTROL DEVICES:

A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer’s recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.

B. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ANSI A117.1 provisions for door opening force and delayed action closing.

C. Combination Door Closers and Holders: Provide units designed to hold door in open position under normal usage and to release and automatically close door under fire conditions. Incorporate an integral electromagnetic holder mechanism designed for use with UL listed fire detectors, provided with normally closed switching contacts.

1. Provide integral smoke detector device in combination door closers and holders complying with UL 228.

2.08 DOOR TRIM UNITS:

A. Fasteners: Provide manufacturer’s standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops and similar units); either machine screws of self-tapping screw.

B. Fabricate edge trim of stainless steel, not more than 1/2" nor less than 1/16" smaller in length than door dimension.

C. Fabricate protection plates (armor, kick or mop) not more than 1-1/2" less than door width on stop
side and not more than 1/2” less than door width on pull side, plate heights shall be 36”, 8”, and 4” respectively. Armor plates on fire doors shall conform to NFPA 80.

1. Metal Plates: Stainless steel, .050” (U.S. 18 ga).

2.09 WEATHERSTRIPPING:

A. General: Except as otherwise indicated, provide continuous weatherstripping at each edge of every exterior door leaf. Provide type, sizes and profiles shown or scheduled. Provide non-corrosive fasteners as recommended by manufacturer for application indicated.

2.10 THRESHOLDS:

A. General: Except as otherwise indicated provide standard metal threshold unit of type, size, and profile as shown or scheduled.

2.11 SILENCERS:

A. Provide silencers except at doors equipped with weatherstrip, soundseals, lighseals, or other gasketing. Provide 3 silencers per single door and 4 silencers per pair of doors.

2.12 HARDWARE FINISHES:

A. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer’s standard finish for the latch and lock set (or push-pull units if no latch-lock sets) for color and texture.

B. Provide finishes which match those established by BHMA or, if none established, match the Architect’s sample.

C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and
other qualities complying with manufacturer’s standards, but in no case less than specified for the applicable units of hardware by referenced standards.

D. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI A156.18 "Materials & Finishes Standard" by BHMA, including coordination with the traditional finishes shown by certain manufacturers for their products.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.

B. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.

C. Install each hardware item in compliance with the manufacturer’s instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

F. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.
3.02 ADJUST AND CLEAN:

A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.

B. Clean adjacent surfaces soiled by hardware installation.

C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

D. Instruct Owner’s Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

3.03 FINISHES

All finishes to be US 32D. Hinges on metal doors shall be primed for painting, ANSI 600. Surface mounted door closers shall be painted to match adjacent hardware.

END OF SECTION
SECTION 13 34 19

PART 1  GENERAL

1.1  SECTION INCLUDES

A. Metal Building System:
   1. Structural steel framing system.
   2. Metal roof system.
   3. Metal wall system.
   4. Roof and wall insulation systems.

1.2  RELATED REQUIREMENTS

A. Section 03 30 00 — CONCRETE WORK

1.3  REFERENCE STANDARDS

A. American Institute of Steel Construction (AISC):
   1. AISC 360 - Specification for Structural Steel Buildings.
   2. AISC 341 – Seismic Provisions for Structural Steel Buildings (when appropriate).
   3. AISC Design Guide 3 – Serviceability for Steel Buildings

B. American Iron and Steel Institute (AISI):
   1. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members.

C. American Welding Society (AWS):

D. Association for Iron & Steel Technology (AISE):

E. ASTM International (ASTM):
   2. ASTM A 653 / A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

F. FM Global:
   1. FMRC Standard 4471 – Approval Standard for Class 1 Roofs for Hail Damage Resistance, Combustibility, and Wind Uplift Resistance.

G. Metal Building Manufacturers Association (MBMA):

H. North American Insulation Manufacturers Association (NAIMA):
   1. NAIMA 202 – Standard For Flexible Fiber Glass Insulation to be Laminated for Use in Metal Buildings.

I. The Society for Protective Coatings (SSPC):
   1. SSPC-Paint 15 - Primer for Use Over Hand Cleaned Steel performs to SSPC-Paint 15 standards.
   2. SSPC-SP2 – Hand Tool Cleaning.

J. Underwriters Laboratories (UL):
K. US Army Corps of Engineers (COE):

1.4 PREINSTALLATION MEETINGS

A. Convene preinstallation meeting 2 weeks before start of installation of metal building system.

B. Require attendance of parties directly affecting work of this section, including Contractor, Architect, Engineer, installer, and metal building system manufacturer’s representative.

C. Review materials, installation, protection, and coordination with other work.

1.5 SUBMITTALS

A. Comply with Section 01 33 00 – Submittal Procedures. All Submittals to be stamped by a Georgia Registered Engineer.

B. Product Data: Submit metal building system manufacturer’s product information, specifications, and installation instructions for building components and accessories.

C. Erection Drawings: Submit metal building system manufacturer’s erection drawings, including plans, elevations, sections, and details, indicating roof framing, transverse cross-sections, covering and trim details, and accessory installation details to clearly indicate proper assembly of building components.

D. Certification: Submit written “Certificate of design and manufacturing conformance” prepared and signed by a Professional Engineer, registered to practice IN GEORGIA verifying that the Design Loads and metal building system design and metal roof system design (including panels, clips, and support system components) meet indicated loading requirements and codes of authorities having jurisdiction.
   1. Certification shall reference specific dead loads, live loads, snow loads, wind loads/speeds, tributary area load reductions (if applicable), concentrated loads, collateral loads, seismic loads, end-use categories, governing code bodies, including year, and load applications.
   2. Submit certification 1 week before bid date on the metal building system manufacturer’s letterhead.

E. Submit certification verifying that the metal roof system has been tested and approved by Underwriter’s Laboratory as Class 90.

F. Submit certification verifying that the metal standing seam roof system has been tested in accordance with ASTM E 1592 test protocols.

G. Dealer Certification: Submit certification 1 week before bid date that the metal building system supplier or metal roof system supplier is a manufacturer’s authorized and franchised dealer of the system to be furnished.
   1. Certification shall state date on which authorization was granted.
H. Installer Certification: Submit certification 1 week before bid date that the metal building system or roof system installer has been regularly engaged in the installation of building systems of the same or equal construction to the system specified.

I. Warranty Documentation: Submit manufacturer’s standard warranty.

1.6 QUALITY ASSURANCE

A. Manufacturer’s Qualifications:
1. Manufacturer regularly engaged, for past 10 years, in manufacture of metal building systems of similar type to that specified.

B. Installer’s Qualifications:
1. Installer regularly engaged, for past 5 years, in installation of metal building systems of similar type to that specified.
2. Employ persons trained for installation of metal building systems.

C. Certificate of design and manufacturing conformance:
1. Metal building system manufacturer shall submit written certification prepared and signed by a Professional Engineer, registered to practice in Georgia verifying that building system design and metal roof system design (including panels, clips, and support system components) meet indicated loading requirements and codes of authorities having jurisdiction.
2. Certification shall reference specific dead loads, live loads, snow loads, wind loads/speeds, tributary area load reductions (if applicable), concentrated loads, collateral loads, seismic loads, end-use categories, governing code bodies, including year, and load applications.
3. Certificate shall be on metal building system manufacturer’s letterhead.
4. Refer to Submittals article of this specification section.

D. Material Testing:
1. In addition to material certifications of structural steel, metal building system manufacturer shall provide, upon request at time of order, evidence of compliance with specifications through testing.
2. This quality assurance testing shall include testing of structural bolts, nuts, screw fasteners, mastics, and metal coatings (primers, metallic coated products, and painted coil products).

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer’s original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage and Handling Requirements:
1. Store and handle materials in accordance with manufacturer’s instructions.
2. Keep materials in manufacturer’s original, unopened containers and packaging until installation.
3. Do not store materials directly on ground.
4. Store materials on flat, level surface, raised above ground, with adequate support to prevent sagging.
5. Protect materials and finish during storage, handling, and installation to prevent damage.

1.8 WARRANTY

A. Metal building system manufacturer shall provide a written weathertightness warranty for a maximum of 25 years against leaks in standing seam roof panels, arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions.
1. Warranty shall be signed by both the metal roof system manufacturer and the metal roof system installer.
2. Maximum liability of warranty shall be no less than $0.70 per square foot of roof area.

B. Metal building system manufacturer shall provide a written warranty for 25 years against perforation of metal roof panels due to corrosion under normal weather and atmospheric conditions.
1. Warranty shall be signed by metal roof system manufacturer.

C. Metal building system manufacturer shall provide a paint film written warranty for 25 years against cracking, peeling, chalking, and fading of exterior coating on painted roof and wall panels.
1. Warranty shall be signed by metal building system or roof system manufacturer and state that the coating contains 70 percent “Kynar 500” or “Hylar 5000” resin.
2. Metal building system manufacturer shall warrant that the coating shall not peel, crack, or chip for 25 years.
3. For a period of 25 years, chalking shall not exceed ASTM D 4214, #8 rating and shall not fade more than 5 color difference units in accordance with ASTM D 2244.

D. Metal Building System Manufacturer’s Certification: Metal building system manufacturer shall submit a signed written Certification 1 week before bid date, stating that the metal roof system manufacturer or approved representative will provide warranties and Inspection and Report Service specified in this specification section.
1. Warranty terms shall be submitted with bid.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Metal Building System Manufacturer: Butler Manufacturing or equal.

2.2 BUILDING DESCRIPTION

1. Horizontal Dimensions: Measure to inside face of wall sheets.
2. Eave Height: Measure from top of finished floor to intersection of insides of roof and sidewall sheets.
3. Clear Height Between Finished Floor and Bottom of Roof Beams: Indicated on the Drawings.

B. Primary Structural Members:
1. Primary Framing System: Butler Manufacturing framing system as specified in this specification section.
2. Frames: Welded-up plate section columns and roof beams, complete with necessary splice plates for bolted field assembly as specified in this specification section.
3. Bolts for Field Assembly of Primary Steel: High-strength bolts as indicated on erection drawings of metal building system manufacturer.
4. Beam and Post Endwall Frames: Endwall corner posts, endwall roof beams, and endwall posts as required by design criteria.
5. Exterior Columns: Welded-up "H" sections or cold-formed “C” sections.
7. Connection of Primary Structural Members: ASTM A 325 bolts through factory-punched holes.
8. Primary Structural Members: Paint with metal building system manufacturer's standard primer with surface preparation as specified in this specification section.

C. Secondary Structural Members:
1. Secondary Framing System: Butler Manufacturing framing system as specified in this specification section.

D. Metal Roof System: Butler Manufacturing metal roof system as specified in this specification section.

E. Metal Wall System: Butler Manufacturing metal wall system as specified in this specification section.

F. Where metal panels are required to be painted, use coating system as specified in this specification section.

2.3 DESIGN REQUIREMENTS

A. Governing Design Code: Registered Engineer, obtained by PEMB manufacturer, to provide the following Loads and Structural Design. Submit Shop Drawings indicating all items. THIS PROJECT IS TO EXCEED THE GOVERNING CODE BY 15%. ALL REQUIRED LOADS TO BE MODIFIED BY A MULTIPLIER OF 1.15.

1. Structural design for the building structural system shall be provided by the metal building system manufacturer for the following design criteria:
   a. Governing Building Code
2. Insulation requirements for the building system shall be provided by for the following energy code or energy standard criteria:
a. Governing Energy Code (IECC) or Energy Standard (ASHRAE 90.1) COMcheck may be used to show code compliance using the envelope performance trade-off method.

B. Roof Live Load:
   1. Roof live loads are loads produced during the life of the structure by moveable objects.
   2. Wind, snow, seismic, or dead loads are not live loads.
   3. Roof live loads are applied based on the Tributary Area as stated in code.

C. Roof Snow Load:
   1. Roof snow load used for designing the structure shall not be reduced and shall be the product of the governing code requirements.
   2. Design snow load shall include the effects of minimum flat roof load limits, rain on snow, drifting snow, and unbalanced snow load as defined in the governing building code specified above.

D. Wind Load:
   1. Wind load used for designing the structure shall be the product of the governing Code requirements.
   2. Wind Pressure Coefficients and the design pressures shall be applied in accordance with the governing code.

E. Seismic Load:
   1. Seismic load used for designing the structure shall be based on the governing code.

F. Dead Load: Dead load shall consist of the weight of building system construction, such as roof, framing, and covering members.

G. Collateral Load:
   1. Collateral load in pounds per square foot shall be applied to the entire structure to account for the weight of additional permanent materials other than the building system, such as sprinklers, mechanical systems, electrical systems, hung partitions, and ceilings.
   2. This allowance does not include the weight of hung equipment weighing 50 pounds or more.
   3. Equipment loads of 50 pounds or more shall be indicated on the Drawings and the structure shall be strengthened as required.
   4. Architect will provide the metal building system manufacturer with the magnitude and approximate location of concentrated loads greater than 50 pounds before design of the building starts.

H. Auxiliary Loads: Auxiliary loads shall include dynamic loads, such as cranes and material handling systems, and will be defined in the Contract Documents.

I. Crane Loads:
   1. Crane loads shall be a function of the Service Class as defined by the governing code and Crane Manufacturers Association of America (CMAA) and the rated tonnage (A- Standby or Infrequent service, B- Light service, C- Moderate service, D- Heavy Service, E- Severe Service, F- Continuous Severe Service).
2. Crane loads will be obtained from the crane manufacturer and supplied by the Architect to the metal building system manufacturer at the time of bid.
3. Building structure shall be designed for the crane loads in accordance with the governing code.
4. Multiple cranes in the same bay or aisle shall be designed in accordance with the governing code.
5. If the governing code does not address multiple crane design practices, MBMA Metal Building Systems Manual shall be used.

J. Load Combinations: Load combinations used to design primary and secondary structural members shall be in accordance with the governing code.

2.4 DEFLECTIONS – information to be provided by manufacturer’s engineer.

A. Structural Members:
1. Maximum deflection of main framing members shall not exceed \( \frac{1}{240} \) of their respective spans.
2. Maximum deflection due to snow load in roof panels and purlins shall not exceed \( \frac{1}{240} \) of their respective spans.
3. Maximum deflection due to wind load in wall panels and girts shall not exceed \( \frac{1}{240} \) of their respective spans.

B. Lateral deflections, or drift, at the roof level of the structure in relation to the floor or slab on grade, caused by deflection of horizontal force resisting elements, shall not exceed \( H/\_\_\_\_ \).

C. Calculations for deflections shall be done using only the bare frame method.
1. Reductions based on engineering judgment using the assumed composite stiffness of the building envelope shall not be allowed.
2. Drift shall be in accordance with AISC Serviceability Design Considerations for Low-Rise Buildings.
3. Use of composite stiffness for deflection calculations is permitted only when actual calculations for the stiffness are included with the design for the specific project.
4. When maximum deflections are specified, calculations shall be included in the design data.

2.5 STRUCTURAL STEEL FRAMING SYSTEM

A. General:
1. Design of Structural System: Clear or multi-span rigid frame with tapered or straight columns and roof beams, with gable or single-slope roof.
2. Actual Building Length:
   a. Structural line to structural line.
   b. Same as nominal; i.e., number of bays times length of bays.
   c. Structural Line: Defined as inside face of wall sheets.
3. Actual Building Width:
   a. Structural line to structural line.
   b. Nominal building width.
4. Minimum Roof Slope: ____1____ inch in 12 inches. Confirm with drawings
5. Maximum Roof Slope: see drawings
6. Components and Parts of Structural System:
   a. Indicated on the Drawings or the Specifications.
   b. Clearly marked.
   d. Drawings: Carry stamp of a registered professional engineer.
7. Foundations:
   a. Foundations, Including Anchor Bolt Embedment Length: Properly designed by qualified engineer, retained by other than metal building system manufacturer, in accordance with specific soil conditions for building site.
   b. Reactions for Proper Design of Foundations: Supplied by metal building system manufacturer.
   c. Anchor Bolts:
      1) Anchor Bolt Diameter: Indicated on anchor bolt layout drawings furnished by metal building system manufacturer.
      2) Anchor Bolts: Supplied by Contractor, not metal building system manufacturer.
      3) Anchor Bolts on Moment-Resisting Column Bases: Nuts above and below base plates.

B. Structural Steel Design:
   1. Structural Mill Sections or Welded-up Plate Sections: Design in accordance with AISC Specification for Structural Steel Buildings.
   2. Cold-Formed Steel Structural Members: Design in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
   3. Structural System: Design in accordance with specified building code (Refer to Design Loads and Building Codes).

C. Primary Framing:
   1. Rigid Frames:
      a. Frames: Welded-up plate section columns and roof beams, complete with necessary splice plates for bolted field assembly.
         1) Base Plates, Cap Plates, Compression Splice Plates, and Stiffener Plates: Factory welded into place and connection holes factory fabricated.
         2) Columns and Roof Beams: Fabricated complete with holes in webs and flanges for attachment of secondary structural members and bracing, except for fieldwork as noted on erection drawings furnished by metal building system manufacturer.
      b. Bolts for Field Assembly of Frame Members: ASTM A 325 high-strength bolts as indicated on erection drawings furnished by metal building system manufacturer.
   2. Endwall Structural Members: Cold-formed channel members designed in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members or welded-up plate sections designed in accordance with AISC Specification for Structural Steel Buildings.
      a. Endwall Frames: Endwall corner posts, endwall roof beams, and endwall posts as required by design criteria.
1) Splice Plates and Base Clips: Shop fabricated complete with bolt connection holes.
2) Base Plates, Cap Plates, Compression Splice Plates, and Stiffener Plates: Factory welded into place and connection holes shop fabricated.
3) Beams and Posts: Factory fabricated complete with holes for attachment of secondary structural members, except for field work as noted on erection drawings furnished by metal building system manufacturer.

b. Intermediate Frames: Substituted for end-wall roof beams, when specified.
   1) Factory fabricate necessary endwall posts and holes for connection to intermediate frame used in endwall.

D. Secondary Structural Members:
   1. Purlins:
      a. Purlins:
         1) "Z"-shaped, precision-roll-formed, acrylic-coated G30 galvanized steel in different gauges to meet specified loading conditions.
         2) 7-inch, 8-1/2-inch, 10-inch, or 11-1/2-inch-deep "Z" sections.
      b. Outer Flange of Purlins: Factory-punched holes for panel connections.
      c. Attach purlins to main frames and endwalls with 1/2-inch-diameter bolts.
      d. Brace purlins at intervals indicated on erection drawings furnished by metal building system manufacturer.
      e. Concentrated Loads: Hung at purlin panel points.
   2. Eave Members:
      a. Eave Struts: Factory punched 7-inch, 8-1/2-inch, 10-inch, or 11-1/2-inch-deep "C" sections, precision-roll-formed, acrylic-coated G30 galvanized steel in different gauges to meet specified loading conditions.
   3. Girts:
      a. "Z" or "C"-shaped, precision-roll-formed, acrylic-coated G30 galvanized steel in different gauges to meet specified loading conditions.
      b. 7-inch, 8-1/2-inch, 10-inch, or 11-1/2-inch-deep "Z" or "C" sections.
      c. Outer Flange of Girts: Factory-punched holes for panel connections.
   4. Bracing:
      a. Locate bracing as indicated on the Drawings.
      b. Diagonal Bracing:
         1) Hot-rolled rods of sizes indicated on the Drawings.
         2) Attach to columns and roof beams as indicated on the Drawings.
      c. Optional fixed-base wind posts or pinned-base portal frames may be substituted for wall rod bracing on buildings as required.
      d. Flange Braces and Purlin Braces: Cold formed and installed as indicated on the Drawings.

E. Welding:
   2. Welding inspection, other than visual inspection as defined by AWS D1.1, paragraph 6.9, shall be identified and negotiated before bidding.
   3. Certification of Welder Qualification: Supply when requested.

F. Painting of Structural Steel Framing System:

Butler Manufacturing
Metal Building System 13 34 19 - 10
Version 12.4
1. **General:**
   a. **Structural Steel:** Prime paint as temporary protection against ordinary atmospheric conditions.
   b. Perform subsequent finish painting, if required, in field as specified in the painting section.
   c. Before painting, clean steel of loose rust, loose mill scale, dirt, and other foreign materials.
   d. **Steel Fabricator:** Not required to sand blast, flame clean, or pickle steel before painting, unless otherwise specified.

2. **Primary Frames:**
   a. Clean steel in accordance with SSPC-SP2.
   b. Factory cover steel with 1 coat of gray water-reducible alkyd primer paint formulated to equal or exceed performance requirements SSPC-Paint 15.
   c. Minimum Coating Thickness: 1.0 mil.

3. **Secondary Structural Members – Roll-Formed:**
   a. Hot-dipped zinc coating, ASTM A 653, G30; followed by 1 coat of clear acrylic finish.

4. **Truss Purlins:**
   a. Hot-dipped zinc coating, ASTM A 653, G30; followed by 1 coat of clear acrylic finish.

2.6 **METAL ROOF SYSTEM**

A. **Metal Roof System:** Butler Manufacturing “CMR-24®” roof system or equal.

B. **Roof System Design:**
   1. Design roof panels and liner panels in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
   2. Design roof paneling system to support design live, snow, and wind loads.
   3. **Endwall Trim and Roof Transition Flashings:** Allow roof panels to move relative to wall panels and/or parapets as roof expands and contracts with temperature changes.

C. **Roof System Performance Testing:**
   1. UL Wind Uplift Classification Rating, UL 580: Class 90.
   2. Structural Performance Under Uniform Static Air Pressure Difference: Test roof system in accordance with ASTM E 1592.
   3. Roof system has been tested in accordance with U.S. Army Corps of Engineers Unified Facilities Guide Specification Section 07 61 13.
   4. FM Global (Factory Mutual):
      a. Roof system has been tested in accordance with FMRC Standard 4471 and approved as a Class 1 Panel Roof.
      b. **Metal Building System Manufacturer:** Provide specific assemblies to meet required wind rating in accordance with FM Global.
      c. Installation modifications or substitutions can invalidate FM Global approval.

D. **Roof Panels:**
1. Factory roll-formed, 24 inches wide, with 2 major corrugations, 2 inches high (2-3/4 inches including seam), 24 inches on center.
2. Flat of the Panel: Cross flutes 6 inches on center, perpendicular to major corrugations in entire length of panel to reduce wind noise.
3. Variable Width Panels:
   a. For roof lengths not evenly divisible by the 2'-0" panel width, factory-manufactured variable-width (9-inch, 12-inch, 15-inch, 18-inch, and 21-inch-wide) panels shall be used to ensure modular, weathertight roof installation.
   b. Minimum Length: 15 feet.
   c. Supply maximum possible panel lengths.
4. Panel Material and Finish:
   a. Paint with exterior colors of “Butler-Cote™” finish system, full-strength, 70 percent “Kynar 500” or “Hylar 5000” fluoropolymer (PVDF) coating.
5. Use panels of maximum possible lengths to minimize end laps.
6. Extend eave panels beyond structural line of sidewalls.
7. Factory punch panels at panel end to match factory-punched holes in eave structural member.
9. Panel End Laps: Locate directly over, but not fastened to, a supporting secondary roof structural member and be staggered, to avoid 4-panel lap-splice condition.
12. Ridge Assembly:
   a. Design ridge assembly to allow roof panels to move lengthwise with expansion and contraction as roof panel temperature changes.
   b. Factory punch parts for correct field assembly.
   c. Install panel closures and interior reinforcing straps to seal panel ends at ridge.
   d. Do not expose attachment fasteners on weather side.
   e. Use lock seam plug to seal lock seam portion of panel.
   f. High-Tensile Steel Ridge Cover: Span from panel closure to panel closure and flex as roof system expands and contracts.

E. Insulation Board:
1. Rigid “Thermax” Metal Building Board glass-fiber-reinforced, polyisocyanurate foam plastic core.
2. Width: 4 feet.
3. Maintain Class A fire rating and R-40 ceiling and R-19 walls.
4. Approved for use without thermal barrier.
5. Maximum Thickness: 4 inches.
6. Covered with embossed aluminum facing - Metal Building Board.

F. Vapor Retarder:
1. WMP-50, 0.0015-inch minimum thickness, UV-stabilized, white polypropylene, laminated to 30-pound Kraft paper/metalized polyester and reinforced with glass fiber and polyester scrim.

G. Provision for Expansion and Contraction:
1. Provision for Thermal Expansion Movement of Roof Panels: Clips with movable tab.
   a. Stainless Steel Tabs: Factory centered on roof clip to ensure full movement in either direction.
   b. Maximum Force of 8 Pounds: Required to initiate tab movement.
   c. Each Clip: Accommodates a minimum of 1.25-inch movement in either direction.

2. Roof: Provide for thermal expansion and contraction without detrimental effects on roof panels, with plus or minus 100-degree F temperature difference between interior structural framework of building and of roof panels.

H. Fasteners:
1. Make connections of roof panels to structural members, except at eaves, with clips with movable stainless steel tabs, seamed into standing seam side lap.
2. Fasten insulation board, bearing plates, and panel clips to structural members with “Scrubolt™” fasteners in accordance with erection drawings furnished by metal building system manufacturer, using factory-punched or field-drilled holes in structural members.
   a. Fasteners: Metal-backed rubber washer to serve as torque indicator.
3. Fasteners penetrating metal membrane at the following locations do not exceed the frequency listed:
   a. Basic Panel System: 0 per square foot.
   b. High Eave Trim, No Parapet: 2 per linear foot.
   c. Exterior Eave Gutter: 2 per linear foot.
   d. Panel Splices: 2 per linear foot.
   e. Gable Trim: 0 per linear foot.
   f. High Eave with Parapet: 0 per linear foot.
   g. Ridge: 0 per linear foot.
   h. Low Eave Structural: 1.5 per linear foot.

I. Accessories:
1. Accessories (i.e., ventilators, skylights, gutters, fascia): Standard with metal building system manufacturer, unless otherwise noted and furnished as specified.
2. Metal Coating on Gutters, Downspouts, Gable Trim, and Eave Trim: “Butler-Cote™” finish system, full-strength, 70 percent “Kynar 500” or “Hylar 5000” fluoropolymer (PVDF) coating.
3. Location of Standard Accessories: Indicated on erection drawings furnished by metal building system manufacturer.
4. Material used in flashing and transition parts and furnished as standard by metal building system manufacturer may or may not match roof panel material.
   a. Parts: Compatible and not cause corrosive condition.
   b. Copper and Lead Materials: Do not use with Galvalume or optional aluminum-coated panels.

J. Thermal Performance:
1. Determine thermal performance in accordance with ASTM C 1363 and test U-factors for composite roof section.

K. Physical Properties:
1. WMP-50 Vapor Retarder:
   a. For conditions of high interior humidity, UV-stabilized, white polypropylene film.
b. Water Vapor Permeance (perm) Rating, ASTM E 96: 0.02.

2.7 INSULATION

   1. TIMA Insignia and Insulation Thickness: Ink-jet printed on fiberglass.

B. Back-Fill Insulation: Owens-Corning Fiberglas unfaced “Pink Metal Building Insulation Plus”.

C. Roof Insulation:
   1. Certified R-Value: ________.

D. Wall Insulation:
   1. Certified R-Value: ________.

E. Roof and Wall Insulation Facing: WMP-VR-R.
   1. 0.0015-inch-thick, UV-stabilized, white polypropylene laminated to metalized polyester film, reinforced with glass-fiber scrim.
   3. Assembly of Insulation Blanket and Facing:
      b. UL Label: Submit as specified in Submittals article of this section.
      c. Perm Rating: 0.02.

2.8 INSULATION SUPPORT SYSTEM


B. Description:
   1. Compatible with roof system.
   2. Limit to “over-the-purlin” type insulation systems.
   3. Knotted Mesh:
      b. Material: Twisted twine of DuPont nylon Type 6-6 fiber.
      c. Mesh Covering Interior Bays: 21-pound twine.
         1) Five-Foot Strip Along Edge: #30 twine, with edge color coded for identification.
   4. Double selvage along the 2 edges in machine direction.
   5. Furnish up to 60 feet wide by building width.
      a. Cover 1 or 2 bays of building length
      b. Extend eave-to-eave across building.

C. Physical Properties:
   1. Minimum Tensile Strength:
      a. #21 Twine: 205 pounds.
      b. #30 Twine: 265 pounds.
2. Runnage:
   a. #21 Twine: 960 feet per pound.
   b. #30 Twine: 605 feet per pound.
3. Cord Used to Make Mesh-to-Mesh Edge Connections: #36 DuPont nylon Type 6-6 white braided twine.
   a. Minimum Tensile Strength: 360 pounds.
   b. Runnage: 533 feet per pound.
4. Mesh Weight: 0.012 pounds per sq ft.

D. Fasteners and Attachment Hardware:
1. Connections to Eave and Gable Members:
   a. 1/8-inch-diameter wire clips looped through 20-gauge steel V-straps.
   b. Steel V-Straps: Fasten to framing with self-drilling screws.
2. Mesh-to-Mesh Edge Connections:
   a. Lace #36 nylon cord through edges of pieces of mesh being connected.
   b. Edge Connections: Plastic cable ties.

E. Fire-Hazard Classification:
1. UL Fire-Hazard Classification Ratings, UL 723:
   a. Flame Spread: 3 or less.
   b. Smoke Developed: Less than 10.

2.9 ROOF INSULATION SYSTEM

A. Roof Insulation System: Butler Manufacturing™ “ThermaLiner™” roof insulation system.

B. System Components:
1. Metal Roof System: Butler Manufacturing™ metal roof system.
2. Sub-Structural System:
   a. 3-inch nominal zee-shaped members (nominal 0.060-inch-thick, acrylic-coated, galvanized steel), factory punched for specific roof system being installed.
   b. Support Brackets:
      1) 3-inch, 5-inch, or 8-inch height support zee and provide space for various thicknesses of insulation.
      2) Install with self-drilling fasteners through interior liner panel and into building structure.
   c. Attach zees to support brackets with self-drilling fasteners.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine area to receive metal building system.

B. Notify Architect of conditions that would adversely affect installation or subsequent use.

C. Do not begin installation until unacceptable conditions are corrected.
3.2 ERECTION – STRUCTURAL STEEL FRAMING SYSTEM

A. Erect structural steel framing system in accordance with the Drawings and metal building system manufacturer’s erection drawings.

B. Field Modifications:
   1. Require approval of metal building system manufacturer.
   2. Responsibility of building erector.
   3. Field Modifications to Truss Purlins: Not allowed, unless indicated on erection drawings furnished by metal building system manufacturer.

C. Fixed Column Bases: Grout flush with floor line after structural steel erection is complete.

3.3 INSTALLATION – METAL ROOF SYSTEM

   1. Install roof system in accordance with metal building system manufacturer’s instructions at locations indicated on the Drawings.
   2. Install roof system weathertight.
   3. Position and align liner panels and insulation board by installing starting panels against endwall trim clips and sidewall eave structural.
   4. Place liner panels with edges up and corrugations perpendicular to secondary structural members and with end laps over secondary structural members.
   5. Attach liner panels to roof secondary structural members with self-drilling screws in accordance with erection drawings furnished by metal building system manufacturer.
   6. Install vapor retarder over liner panels with 6-inch minimum side laps and end laps.
   7. Position panel clips and bearing plates by matching hole in clip with factory-punched or field-drilled holes in secondary structural members.
   8. Position and properly align panels by matching factory-punched holes in panel end with factory-punched holes in eave structural member and by aligning panel with panel clip.
      a. Machine field forms the final 180 degrees of a 360-degree Pittsburgh double-lock standing seam.
      b. Factory apply side lap sealant.
      a. Sealants: Contain hard nylon beads, which prevent mastic from flowing out due to clamping actions.
      b. Join panel laps by 2-piece clamped connection consisting of a bottom reinforcing plate and a top panel strap.
      c. Locate panel end laps directly over, but not fastened to, supporting secondary roof structural member and stagger, to avoid 4-panel lap-splice condition.
3.4 PROTECTION

A. Protect installed metal building system to ensure that, except for normal weathering, metal building system will be without damage or deterioration at time of Substantial Completion.

END OF SECTION
PART 1 - GENERAL

1.01 CONDITIONS OF THE CONTRACT
   A. Work included under this section of the specifications is subject to the provisions of the Contract Documents, General and Special Conditions.

1.02 SCOPE
   A. This section of the specifications describes materials and equipment to be incorporated into the plumbing, heating, ventilation, and air conditioning systems and requirements for performing related work. The shall coordinate his work with other crafts to avoid conflicts.

1.03 WORK INCLUDED
   A. The work covered by this section includes providing all labor, equipment and materials as specified herein, shown on the drawings or required for a complete and satisfactory installation.

1.04 RELATED WORK SPECIFIED IN OTHER SECTIONS
   A. Division 1: General Requirements.
   B. Cutting and repairing of walls, ceilings, roofs and structure, except as specified herein.
   C. Painting, except as specified herein.
   D. Providing electric wiring systems for power, interlock, remote starting, and control service except as specified herein.
   E. Installing motor starters and thermal overload switches.
   F. Installing remote push button stations and breakglass stations.
   G. Casework.

1.05 CODES AND STANDARDS
   A. Perform work in accordance with local, state, and federal regulations. Code requirements are minimum and shall be complied with at no additional cost to owner.
   B. In event of a discrepancy between contract documents and governing codes, comply with the codes. It will be assumed that such discrepancy was noted and cost of adjustment included in the bid price. Before starting work, submit to architect in writing a description of such adjustments or changes as may exist.
C. Where requirements of the contact documents exceed code requirements, perform work in accordance with the contract documents.

D. The following shall be adhered to as a minimum:

1.06 ABBREVIATIONS & ACRONYMS
A. These abbreviations and acronyms are used in this section:
   ASHRAE - American Society of Heating, Refrigerating, and Air Conditioning Engineers, INC.
   NFPA - National Fire Protection Association
   SMACNA - Sheet Metal and Air-Conditioning National Association
   UL - Underwriters' Laboratory

1.07 DEFINITIONS
A. To establish common meaning of terms in the mechanical work, use these definitions:
   Provide - Furnish and install subject item, complete with accessory items for safe operation within the design intent.
   Furnish - deliver subject item to project at point of final installation or use, except where other point is specified.
   Install - make a final installation of items furnished.
   Complete - with all accessory items required for safe operation within the design intent.
   Indicated - as shown on drawings.
   Concealed - where used in connection with insulation and painting of piping, ducts and accessories to mean hidden from sight, as in chases, furred spaces, pipe shaft or suspended ceilings.
1.08 PERMITS, INSPECTIONS AND STREET CONNECTIONS
   A. Secure and pay for permits and inspections required for installation of the work. Deliver certification of inspections to architect.
   B. Arrange for and pay costs incurred for connections of water, gas and sewer, including furnishing of water meter, excavating, trenching, backfilling, and repairing payment as required for installation of the work where indicated on the drawings or specifically noted on the drawings.

1.09 VERIFY EXISTING CONDITIONS
   A. Before commencing work, shall examine all conditions on which this work is in any way dependent for perfect workmanship according to the intent of drawings and specifications and shall report to the general, in writing, and conditions which prevent this from performing acceptable work.
   B. It shall be assumed that, before submitting his bid, shall have made an “on-site” inspection of the premises to determine the conditions under which he will be expected to perform this contract. No increase in contract price shall be allowed due to failure of the to perform this “on-site” inspection.

1.10 DESIGN CONDITIONS
   A. Outdoor design conditions are in accordance with the ASHRAE Handbook of Fundamentals.

1.11 DRAWINGS
   A. Refer to the architectural drawings for such details as finishes, dimensions, materials, etc., of the building. Check architectural features such as door openings, wall thicknesses, wall locations, etc. against the architectural drawings prior to the installation of the work.
   B. Mechanical drawings are diagrammatic, showing general locations of fixtures, pipes, etc., and are not to be scaled. Check all dimensions, existing conditions, etc., at building site. Provide off-sets, bends, fittings, and swing joints not shown, but required for proper installation of mechanical work.
   C. Furnish material and labor necessary to make a complete operating system except in such cases that are specifically indicated by others.
   D. This division of the specifications and accompanying drawings shall be considered as supplemental...
SECTION 23 05 00
GENERAL MECHANICAL PROVISIONS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC. 23 05 00-4
BARROW COUNTY AMBULANCE FACILITY
JULY 31, 2018

one to the other; materials and equipment and labor called for by one and not the other shall be supplied and installed as though specifically called for by both.

E. As Built Drawings:

Keep a blueline set of the shop drawings exclusively for the purpose of recording the exact installed locations of piping and equipment as the project progresses. Upon completion of the work the shall modify reproducible transparencies to reflect the noted changes throughout the project. The changes indicated on the transparencies shall be drafted in a neat and legible manner.

The as-built drawings shall include:
1. Mark all drawings “AS- BUILT CONSTRUCTION DOCUMENTS”.
2. Indicate the date drawings were prepared.
3. The ’s name, address, and phone number.
4. Revise schedules per equipment submittal, including manufacturer and capacities.

1.12 ’S CLOSE-OUT CHECKLIST

A. The shall, at the end of the projects, submit to the owner the PROJECT CLOSE-OUT CHECKLIST filled in, in its entirety. Final payment shall not be approved until checklist is approved. The checklist is found at the end of this section.

PART 2 - PRODUCTS

2.01 LAYOUT BASIS

A. The system layout is based upon the use of particular items of equipment with such items identified by manufacturer’s make and model number. Physical dimensions, arrangement and service connections required for these particular items have been considered in making the layout. The equipment of another manufacturer listed as “acceptable” on that item of equipment may be submitted provided that energy requirements are no greater than for layout basis, and that additional service connections will be made at no additional cost to the owner.

B. Should shop drawings disclose that the above requirements cannot be met on the basis of the submitted equipment, shall furnish equipment as specified for “Layout Basis”.

C. If equipment other than layout basis is proposed, the cost of all such changes as may be required in service connections and in structural systems to accommodate the proposed substitution, including additional engineering services, become the responsibility of the and impose no additional
2.02 MATERIALS
A. All materials used in the job shall conform to the standards cited.
B. Where mention of trade names and brands are used in describing materials for this installation, they are to indicate type, quality and arrangement of material required. Equal materials by other manufacturers, if used, must be approved by architect, prior to installation.
C. There shall be no asbestos in any material furnished under this contract.

2.03 DATA AND DRAWINGS TO BE SUBMITTED
A. Within 30 days after contract is signed, nine (9) copies of ALL equipment and ALL materials data requiring review shall be submitted thru proper channels after having been reviewed and stamped by sub and general.
   1. Data shall be bound in loose-leaf, three-ring, hard-back binders with pockets for diagrams Sectionalize with numbered tabs and preface with reference index.
   2. Cover sheet shall list project name, location, architect, engineer and general.
   3. All items of equipment shall be submitted at same time except items such as temperature controls and diagrams that are dependent upon “reviewed” data. They may be submitted separately at a later date. Provide sections in binders tabbed for these items to be inserted at a later date.
B. All submittal data shall include project name, the model, style and size of item being submitted, local manufacturer’s representative and telephone number and all criteria shown on schedule on plans. Submitted items shall include but not be limited to the following:
   1. Pipe Specialties
      a. Include capacity curve with pump suction diffuser.
      b. Valves
      c. Valve Tags
   2. Calibrated Balancing Valves
   3. Inertia Bases
   4. Pumps
      a. Submit curves
   5. Chemical Treatment System
6. Insulation
7. Sump Pumps
   a. Submit pump curves
8. Fans
   a. Submit fan curves on all fans including AHU’s and RTU’s.
9. Flexible Duct
10. Roof Curbs

C. After reviewed data has been returned, shall proceed with shop drawings of duct work and equipment room piping shall be submitted.
   1. Duct Work Shop Drawings shall not be smaller than 1/4” = 1’-0” scale and must include duct size; equipment connections and pad layout; location, dimensioned from building structure; off-sets, bottom elevation above finished floor; liner where required, plenums and all accessories.
   2. Equipment Room Drawings shall include boilers, pumps, major piping (including control, check, isolation, balancing, and drain valves), pad layouts for all floor mounted equipment, air handlers and associated accessories. Scale to be not less than 1/4” = 1’-0”.
   3. Duct Work and Equipment Room Shop Drawings shall be prepared on sheets the same size as contract documents. Enlarged copies of contract documents shall not be acceptable as shop drawings.

D. Separate binders may be submitted for major sub-s such as HVAC; Plumbing; Fire Protection.

E. Attention is directed to a paragraph entitled “Operation and Maintenance Instructions”, Section 15 905 requiring copies of reviewed data to be included in O&M manuals.

2.04 CERTIFICATES
   A. Upon acceptance by authorities having jurisdiction, certificates of occupancy required for this project including plumbing, HVAC, fire protection and Health Department certification of portable water shall be indicated by the responsible (s).

2.05 EQUIPMENT FOUNDATIONS
   A. All floor mounted equipment, unless otherwise detailed, shall be mounted on 4” high concrete pads extending a minimum of 4” beyond longest dimension in each direction. Concrete shall be 3,000 psi.
2.06 FIRE STOPPING

A. Piping penetrations in fire walls shall be sealed with UL listed fire stopping materials meeting requirements of ASTM E-814.

B. Acceptable products are Dow Corning 3-6548 Silicone RTV Foam, Flamesafe T&B Firestop, 3M, Nelson Electric and GE Pensil.

PART 3 - EXECUTION

3.01 PROTECTION OF WORK DURING CONSTRUCTION

A. Provide protective covers, skids, plugs, caps and coatings to protect equipment and materials from damage and deterioration during construction.

B. Store equipment and material under cover and off the ground.

C. When outdoor storage is necessary, provide protective covers of sheet plastic of gauge suitable for the area involved and reinforced to withstand wind and precipitation. Set equipment and materials on skids or platforms of height sufficient to avoid damage from splattering and ground water.

D. Plug ends of pipes when work is stopped to prevent debris from entering the pipes.

E. Close open ends of ductwork with temporary closures of sheet plastic taped in place on horizontal ducts and sheet metal caps with drip overhangs for ducts opening upward.

F. Do not operate any air handling systems during the construction period without filters in place to filter air entering the fan. Protect the exhaust fans by temporary filters cut from roll media and fastened over the air inlets.

3.02 WORKMANSHIP

A. The entire contract shall be executed in a neat, substantial and workmanlike manner, according to the true intent and meaning of the plans and specifications. Any work not installed in a neat, substantial and workmanlike manner shall, when directed in writing, be removed and replaced at the 's expense without additional cost to the owner.

3.03 TOOLS

A. The for this work shall furnish all tools, machinery, hoists and other means for proper installation of the work.

3.04 TRENCHING, BACKFILLING AND PAVING
A. Install water service piping and sewers below recorded frost penetration line in compliance with applicable codes.

B. Excavate trenches to sufficient width, shore trenches, and remove water as necessary to permit proper installation of the work.

C. Backfill trenches only after piping has been tested, inspected, and locations of pipes and appurtenances properly recorded.

D. Maintain clearance from excavation to footings and outside bearing walls of 3 feet and an angle of not greater than 45-degrees to bottom of such footings or outside bearing wall.

E. Provide shoring when soil conditions and depth of excavation warrant shoring.

F. Where rock is encountered, remove rock to a depth of 6” below desired bottom of excavation and backfill with clean earth to desired level.

G. When piping is laid in fill or loose sand, tamp bottom of trenches to obtain 95% of dry maximum density compaction as determined by Standard Proctor Compaction Test, ASTM D698-58, prior to installation of pipes.

H. Use backfill free from rocks and debris, compacted in 6” layers as the excavation is filled. Take precaution to prevent damage to the piping.

I. Hand tamp backfill around the lines to depth of 2 feet above top of the lines and compact to obtain 95% of dry maximum density compaction as determined by the Standard Compaction Test ASTM D698-58.

J. Provide bell holes and continuous firm bedding for piping.

3.05 CUTTING AND PATCHING

A. All cutting and patching needed for installation of mechanical system shall be included under this Division.

B. No cutting will be permitted without prior approval by the owner.

C. Patching will be done by the trade whose work has been cut and shall be paid for under the mechanical division of the specifications.

D. shall furnish to other trades information such as size, position and arrangement of materials and equipment, so that openings in floors, walls, roofs, beams, and ceilings can be provided as construction progresses. When openings are omitted because of his failure to furnish information to the , this trade at his expense, shall direct and pay general to do cutting and patching required.
3.06 EQUIPMENT FOUNDATIONS

A. Concrete foundations and steel supports, etc., shall be provided in accordance with the Concrete and Structural Division of the specifications.
B. Concrete foundations shall have 3/4” beveled edges and all surfaces rubbed smooth prior to mounting equipment.
C. Prepare structural slabs to receive pad and curbs. Roughen contact surface before pouring concrete.
D. For equipment provided with gout holes, fill voids with non-shrinking grout after alignment and before operation of equipment.

3.07 COORDINATION OF INSTALLATION

A. Coordinate work under this division with work under other divisions.
B. Install work to fit into the spaces provided. Avoid damage on account of ill-timed work.
C. Arrange work to provide maximum headroom and clearance consistent with the requirements of the documents.
D. Except where otherwise noted, arrange piping to run either parallel or normal to building lines, and true to grade.
E. Provide supports and anchors for work to avoid damage from movement.
F. Place equipment, valves and unions requiring service in accessible locations.
G. Install materials and equipment completely with piping, controls and accessories.
H. Coordination of equipment located in ceiling plenums (air conditioning equipment, ductwork, plumbing, lights, fire protection lines, structure, etc.) shall be done before installation is begun and continued during construction to assure proper space for maintenance of equipment and maneuverability of light fixtures in the grid.

3.08 COUNTER FLASHING

A. All flashing methods and materials shall provide a complete watertight installation.
B. Provide counter flashing for items placed on roof or piercing roof. General shall provide base flashing.
C. Riser sleeves for piping and conduits in membrane waterproofed floors shall have flashing clamps attached to membrane. Large sleeves shall be shop fabricated. Sleeves shall extend 2 inches above finished floor.
D. Drains and cleanouts in membrane water proofed floors shall have flashing clamps attached to
the membrane.
E. Ducts passing through roof shall be counterflushed with sheet metal, soldered to duct riser and extended down over roof curbs, which is properly flashed by the General. Apply heavy coating of roofing cement at junction of duct and counterflushing collar.

3.09 CLEANING AND ADJUSTING
A. All equipment, pipe, valves and fittings shall be wiped clean, with all traces of oil, dust, dirt, and paint spots removed. Bearings shall be lubricated as recommended by the equipment manufacturer. All control equipment shall be adjusted to setting indicated.

3.10 PAINTING
A. Clean surfaces of work under this Division and leave surfaces ready for painting. Colors shall be selected by Architect.
B. Where surfaces of factory finished items are marred, refinish those surfaces to original condition with factory furnished touch up paint.
C. The following, as a minimum, shall be painted:
   1. Steel equipment supports.
   2. Exposed ductwork where specified.
   3. Ferrous louvers and grilles where specified elsewhere.
   4. Exposed ferrous pipe hangers.

3.11 NOTIFICATION BEFORE INSPECTION
A. Notify the architect/engineer in writing not less than five (5) working days before work is ready for inspection.

3.12 COORDINATION OF ELECTRICAL WORK
A. Provide electrically operated equipment designed and built for operation with electric characteristics provided by Division 16. Verify voltage, horsepower, wattage and phase from electrical drawings before ordering equipment.
B. Provide motor controls, systems controls, starters, s, etc., required for the mechanical systems complete as a part of the motor or apparatus which it operates, unless specifically noted to be provided under another section.
C. Provide under the work of this section all other devices, line and low voltage control and interlock wiring, and additional conduit necessary but not indicated on the electrical drawings, all in accordance with material and installation requirements.

D. Provide wiring diagrams required for the proper installation of the equipment under the work of this section.

E. All mechanical assemblies containing multi-motors or electric heating elements shall be factory equipped with integral over-current protection for each motor/heater in accordance with the requirements of the N.E.C.

3.13 GUARANTEE

A. shall guarantee this work and make good without cost to the owner any defects in equipment, materials or workmanship which may develop within the period of one (1) year from date of acceptance or beneficial use by the owner.

B. Refrigeration Compressors shall be provided with an additional 4 year warranty which shall include labor and refrigerant.

END OF SECTION
MECHANICAL PROJECT CLOSE-OUT CHECKLIST

The following items as stipulated by Carter Watkins Associates and/or their Consultants are to be provided. The project will not be accepted as 100% complete until these items are provided to the appropriate parties.

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<th>ITEM</th>
<th>ACCEPTED BY</th>
<th>REPRESENTING</th>
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<td>1. O &amp; M Manuals</td>
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<td>2. Copy of shop drawings and submittals</td>
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<td>3. Extended warranties for HVAC equipment</td>
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<td>4. Certification of welders</td>
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<td>5. Controls under glass</td>
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<td>6. As-builds</td>
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</table>
7. Test and balance report

8. Change out construction filters in air moving equipment

9. Fire protection documents reviewed by Insurance Underwriter

10. Valve tags and charts
<table>
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<th></th>
<th>6. As-builts</th>
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<td>Test and balance report</td>
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<td>Change out</td>
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<td>Valve tags and charts</td>
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MECHANICAL PROJECT CLOSE-OUT CHECKLIST

The following items as stipulated by Carter Watkins Associates and/or their Consultants are to be provided. The project will not be accepted as 100% complete until these items are provided to the appropriate parties.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACCEPTED BY</th>
<th>REPRESENTING</th>
<th>DATE</th>
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</thead>
<tbody>
<tr>
<td>1.   O &amp; M Manuals</td>
<td>___________________</td>
<td>___________________</td>
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<tr>
<td>2.   Copy of shop drawings and submittals</td>
<td>___________________</td>
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<tr>
<td>3.   Extended warranties for HVAC equipment</td>
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<td>4.   Certification of welders</td>
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<td>5.   Controls under glass</td>
<td>___________________</td>
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PART 1 - GENERAL

1.01 WORK INCLUDED
   A. The work covered by this section includes furnishing all labor, equipment, and materials as specified herein, shown on the drawings, or required for a complete and satisfactory installation.

1.02 REFERENCE STANDARDS
   A. American National Standards Institute (ANSI)
   B. American Society of Mechanical Engineers (ASME)
   C. National Fire Protection Association (NFPA)
   D. Underwriters Laboratory

PART 2 - PRODUCTS

2.01 PIPING
   A. Domestic Water Systems:
      1. Pipe, 3” size and smaller: Copper water tube manufactured in accordance with ANSI H23-1.
         a. Type “L” hard copper above ground.
         b. Type “K” hard or soft copper underground or in pipe trench.
      2. Fittings: Wrought copper seat joint conforming to ANSI B16.22.
      3. Screwed or flanged to sweat pipe connections cast brass, ASA B16.18.
      4. Joints:
         a. 2” and smaller: 95-5 (95% tin and 5% antimony) solder.
         b. 2 - ½” and larger: 95-5 (95% tin and 5% antimony) solder.
         c. All joints below slab on grade shall be alloy solder melting not less than 1000 degrees F.
      5. Unions:
         a. Cast brass or bronze with soldered connections. Unions 2” and smaller, ground joint; 2 - ½” and larger, flanged.
      6. Pipe, 4” diameter and larger:
         a. Underground: 4” size shall be Class 51, 6” and larger shall be Class 50 ductile iron, ANSI A21.51-1976 with push on or mechanical joints with the bituminous outer coating. Fittings shall be 250 psi ductile iron, mechanical
joints with bituminous outer coating.

b. Above Ground: 4” size and larger shall be type L hard drawn copper with wrought copper or cast brass fittings.

B. Soil, Waste, and Vent piping within the building and where indicated on the drawings.

1. Pipe and Fittings:
   a. Above slab-on grade and inside the building shall be PVC pipe and fittings properly marked to indicate the system complies with all Soil Pipe Standards 301-74.
   b. Below slab-on grade and under floor shall be hub and spigot with oakum and lead caulked joints or at contractor’s option, neoprene one-piece elastomeric compression gasket joints for pipe bearing on virgin soil.
   c. Sanitary outside building may be PVC or at Contractor’s option, extra strength vitrified clay with PVC joints.

2. Pipe and Fittings:
   a. ABS or PVC piping above and below slab on grade except in return air plenums.
   b. ABS plastic DWV piping and fittings shall conform to ASTM Standard D2661 and shall be so marked. ABS solvent cement shall conform to ASTM Standard D-2235.
   c. PVC plastic DWV piping and fittings shall conform to ASTM Standard D2665 and shall be so marked. PVC solvent cement shall conform to ASTM Standard D-2564. PVC primer shall be applied to pipe and inside of socket fittings before applying PVC solvent cement.
   d. Pipe cement that is recommended by the manufacturer for use on neither ABS of PVC pipe shall not be permitted on the project.
   e. All plastic pipe and fittings shall be NSF approved and shall be so marked.
   f. All ABS and PVC plastic pipe and fittings shall have solvent socket ends.

C. Waste connections to service sink trap standards:

1. Pipe: Galvanized Schedule 40 steel pipe.
2. Fittings: 125 lb. galvanized, screwed, recessed pattern, drainage fittings.
3. Options: Type “L” copper with adapters.

D. Waste connections to lavatories, sinks, and drinking fountains:

1. Pipe: Type “L” hard copper manufactured in accordance with ANSI H23.1.
2. Fittings: Cast brass alloy or wrought copper drainage fittings manufactured in accordance with ANSI B16.23.

E. Soil connections to urinals:
1. Pipe: Type “K” copper with wrought copper pressure fitting or red brass nipples and cast brass fittings.

F. Waste connections to water closet:
1. Floor Mounted - Cast iron closet flange bolted to fixture with fixture setting seal gasket.
2. Wall Hung - Chair carriers as specified with fixture.

G. Condensate Drain Piping:
1. Type “M” copper tubing.
2. Fittings:
   a. Copper pipe: Sweat wrought copper or cast brass.
   b. Provide cleanout for all changes of direction exceeding 45 degrees.

H. Chilled Water and Hot Water Space Heating Piping:
1. Pipe: Schedule 40 black steel conforming to ASTM A120.
2. Fittings: Wrought carbon steel butt welding fittings, conforming to ASTM A234, for pipe sizes 2-1/2” and larger. Malleable iron, 150 lb. class, screwed conforming to ASTM A47, for pipe sizes 2” and smaller.
3. Alternate Fittings: Grooved piping and fittings.
   a. Acceptable manufacturers are Victaulic and Grinnell Groove-loc.
   b. Fittings shall be rigid type unless noted otherwise on plans.
   c. Manufacturer shall submit piping shop drawings.

I. Gas Piping:
1. Pipe: Schedule 40, black steel pipe conforming to ASTM A-120, factory coated and wrapped for underground, uncoated for above ground.
2. Fittings: Carbon steel, butt weld for sizes 2-1/2” and larger and black malleable iron, screwed for 2” and smaller. Brushings are not permitted.
3. Corrosion protection: Apply corrosion resistant coating, to all underground joints and damaged factory wrap.
4. Gas pipes shall not be installed below floor slabs on grade, in partitions, walls or plenums except as directed and as approved by local codes.
5. Provide gas cock for each piece of equipment.
J. Compressed Air Piping: (125 psig)
   1. Pipe: Type “L” copper.

   OR

   3. Pipe: Schedule 40, black steel conforming to ASTM A120.
   4. Fittings: Carbon steel, 125 lb. butt weld for size 2-1/2” and larger; black malleable screwed for 2” and smaller.

K. Underground Piping Systems:
   1. The layout basis of the following chilled water, hot water systems is Thermal Pipe Systems. Acceptable alternates are Ricwil, Permapipe, and Thermacore.
   2. Space Heating Hot Water Piping:
      a. HEAT-TITE shall be used for hot water supply and return using a rubber ring jointing method. Unless otherwise specified, all pipe, fittings, valves, and accessories shall conform to the requirements of ANSI B31.1, and shall be of the proper type for pressure and temperature of the heating or cooling water.
      b. Steel Carrier Pipe: Carrier pipe shall be steel pipe.
      c. HEAT-TITE COUPLING: The HEAT-TITE coupling shall be Reinforced Thermosetting Resin Plastic (RTRP). The RTRP coupling shall be glass filament wound epoxy ring, shall be machined into the coupling. The length of the coupling shall be such that when correctly assembled it will give the proper end separation.
      d. Rubber Sealing Rings: Rubber sealing rings for HEAT-TITE piping shall be molded heat resistant Ethylene Propylene Diene Monomer (EPDM) using a properly vulcanized compound. The ring surfaces shall be smooth and free from all porosity and internal voids.
      e. PVC Casing Pipe: The Polyvinyl Chloride (PVC) Casing Pipe shall be of virgin PVC resin meeting the classification requirements of ASTM D1784. The thickness shall be as shown on the following pages.
      f. Rubber End Seals: Rubber end seals for insulated HEAT-TITE shall be a high temperature (HT) heat resistant Ethylene Propylene Diene Monomer (EPDM) molded rubber compound. All surfaces shall be smooth and free of voids.
g. Polyurethane Foam Insulation: Polyurethane foam insulation shall meet the following specifications:

- **Type:** Two component urethane
- **Compressive Strength:** 25 psi parallel min at 5% comp
- **Shrinkage:** None at 70 F
- **Free Rise Density:** 1.5 to 2.5 lbs / cu. ft.
- **Aged “K”**
  - (70 F - 72 hrs): 0.140 BTU per inch, per hour, per degree Fahrenheit, per s.f.
- **Closed Cell Content:** 90%
- **Insulation Concentricity:** Carrier Pipe shall be concentric to casing pipe. The allowable maximum deviation from center line of carrier pipe shall be plus or minus 1/4 inch at the casing center point and plus or minus 1/16 inch at the end seals.

h. Casing-Tite Coupling: The Casing-Tite coupling shall be of virgin PVC Resin meeting classification requirements of ASTM D1784. The coupling shall be SDR 51 or heavier. The rubber rings shall meet ASTM D1869. The Casing Tite coupling shall have a groove molded into each end and the sealing rings inserted into the groove at the factory.

i. Insulated Fittings: Fittings may be preinsulated by Thermal Pipe Systems, Inc. using the same insulation thickness and casing as the pipe. Where necessary laid-up fiberglass casing will be substituted in all or part of the fitting. A thrust plate of the proper size shall be provided. End seals on fittings shall be the same as used on the pipe.

j. Wall Penetration Sleeves: Provide where piping passed masonry or concrete walls, floors, and roofs. Sleeves in outside walls below and above grade, in floor, or in roof slabs, shall be schedule 40 or standard weight coated black steel pipe. Space
between piping or insulation casing, and the sleeve shall be sufficient to allow proper water tight sealing, but never less than $\frac{1}{2}"$. Sleeves shall be held securely in proper position and location during construction. Sleeves shall be of sufficient length to pass through entire thickness of walls or slabs. Sleeves in floor slabs shall extend 2 inches above the finished floor. In existing concrete manholes or building, wall penetrations may be made using the “core drilling” methods providing proper care is taken to drill the holes to the size needed and square to the line of the pipe.

k. Wall Penetration Seals: All wall penetrations shall be sealed to prevent water from entering the building or manhole. The sealing material shall be as specified by the engineer.

l. Insulation: Thickness of insulation for HEAT-TITE pipe and fittings shall be as shown below.

m. Temperature and Pressure: The HEAT-TITE piping system and all of its components to operate up to 150 psig at 250 degrees F, plus typical surges.

n. Dimensions and Weights of insulated HEAT-TITE piping and fittings are as shown below.

<table>
<thead>
<tr>
<th>SCHEDULE</th>
<th>PIPE SIZE</th>
<th>INSULATION THICKNESS</th>
<th>WT. (LBS/FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>2</td>
<td>.92</td>
<td>105.6</td>
</tr>
<tr>
<td>80</td>
<td>2</td>
<td>1.20</td>
<td>209.4</td>
</tr>
<tr>
<td>80</td>
<td>4</td>
<td>1.67</td>
<td>316.8</td>
</tr>
<tr>
<td>80</td>
<td>6</td>
<td>1.59</td>
<td>531.8</td>
</tr>
<tr>
<td>80</td>
<td>8</td>
<td>1.57</td>
<td>781.8</td>
</tr>
</tbody>
</table>
3. Chilled Water Piping:

a. KOOL-KORE shall be used for chilled water service, using a rubber ring jointing method.

b. PVC Carrier Pipe: Carrier pipe shall be Polyvinyl Chloride (PVC) 160 psi pipe - SDR 26 in accordance with ASTM D2241. Pipe shall be extruded from clean, virgin approved class 12454A PVC compound conforming to ASTM D1784.

c. PVC Casing Pipe: The PVC casing pipe shall be of virgin PVC resin meeting the minimum classification requirements of ASTM D1784. The thickness shall be as shown on the following pages.

d. Rubber Sealing Rings: Sealing rings for the PVC carrier pipe shall be a molded solid compression type rubber compound suitable for the service and pressure of the system.

e. Rubber End Seals: End seals for insulated KOOL-KORE shall be molded rubber with a compression type seal.

f. Polyurethane Foam Insulation: Polyurethane foam insulation shall meet the following specifications:

<table>
<thead>
<tr>
<th>Type:</th>
<th>Two component urethane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive Strength:</td>
<td>25 psi parallel min at 5% comp</td>
</tr>
</tbody>
</table>
Shrinkage: None at 70 F

Free Rise Density: 1.5 to 2.5 lbs / cu. ft.

Aged “K”: 0.140 BTU per inch, per hour, per degree (70 F - 72 hrs) Fahrenheit, per s.f.

Closed Cell Content: 90%

Insulation Concentricity:

Carrier Pipe shall be concentric to casing pipe. The allowable maximum deviation from center line of carrier pipe shall be plus or minus 1/4 inch at the casing center point and plus or minus 1/16 inch at the end seals.

g. Wall Penetration Sleeves: Provide where piping passes through masonry or concrete walls, floors, and roofs. Sleeves in outside walls below and above grade, in floor, or in roof slabs, shall be schedule 40 or standard weight coated black steel pipe. Space between piping or insulation casing, and the sleeve shall be sufficient to allow proper water tight sealing, but never less than ½”. Sleeves shall be held securely in proper position and location during construction. Sleeves shall be of sufficient length to pass through entire thickness or walls or slabs. Sleeves in floor slabs shall extend 2 inches above the finished floor. In existing concrete manholes or building, wall penetrations may be made using the “core drilling” methods providing proper care is taken to drill the holes to the size needed and square to the line of the pipe.

h. Wall Penetration Seals: All wall penetrations shall be sealed to prevent water from entering the building or manhole. The sealing material shall be as specified by the engineer.

I. Insulation: Thickness of insulation for KOOL-KORE pipe shall be as shown
j. Temperature and Pressure: The KOOL-KORE piping system and all of its components are designed to operate at temperatures up to 70°F at 160 psig or at reduced pressures for elevated temperatures, as follows:

<table>
<thead>
<tr>
<th>TEMP. F</th>
<th>PRESSURE psig</th>
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<tbody>
<tr>
<td>80</td>
<td>144</td>
</tr>
<tr>
<td>90</td>
<td>121</td>
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<tr>
<td>100</td>
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<td>120</td>
<td>64</td>
</tr>
<tr>
<td>130</td>
<td>49</td>
</tr>
</tbody>
</table>

k. Dimensions and weights of insulated KOOL-KORE piping systems are as shown below.

<table>
<thead>
<tr>
<th>SCHEDULE</th>
<th>PIPE SIZE</th>
<th>INSULATION THICKNESS</th>
<th>WT. (LBS/FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>4”</td>
<td>1.67</td>
<td>143</td>
</tr>
</tbody>
</table>
A. Escutcheon Plates:

1. Escutcheon plates: Chromium-plated, not less than 20 gauge steel, split pattern, set screws on ceiling plates, spring clips on others, sized to fit over insulation and to cover sleeves.

2. For exposed piping in flush sleeves in finished areas: Grinnell Fig. 10, F & S Fig. 602, Perfection Fig. 10.

3. For exposed piping where sleeves extend beyond penetrated surface, provide deep pattern type.

B. Pump Suction Diffuser:

1. Cast iron body, steel or cast iron outlet guide vanes, removable stainless steel strainer and fine mesh brass start-up strainer.

C. Triple Duty Valve:

1. Angle or straight type combination shut-off, balancing, non-slam check valve with cast iron body, bronze disc and seat, and stainless steel valve stem and spring.

2. Install valve with ample clearance for valve stem and service.

D. Air Purger:

1. Steel or cast iron body, flanged connections for horizontal, in-line installation, and tappings for vent and drain connections.

E. Air Vents:

1. Automatic Air Vents shall be Armstrong Model AAE-750, or equal, installed in a vertical position with a gate valve to isolate vent for service or replacement.
2. Manual Air Vents shall be Armstrong No. 72, or equal up to 75 psig operating pressure or lever handle brass cock rated for operating pressure. Provide brass goose neck termination.

F. Automatic Fill Valve:

Armstrong Model RD or HRD or equal as required for operating pressure of installation.

G. Expansion Tank:

Taco Model CAX or equal ASME precharged bladder expansion tank stamped 125 psig working pressure with replaceable bladder, rated for 240-degrees F. at the tank and air charging valve to facilitate precharge pressure to meet actual system conditions.

H. Backflow Preventer: (Make-up Water System)

1. Watts Model 9D or equal, tested and certified under A.S.S.E. Standard 1012-1980 or CSA Standard B64.3.

I. Water Pressure Reducing Valve (Make-up water system) - Armstrong RD-40, or equal bronze construction with built-in strainer.

J. Strainers shall be Y-pattern type with cast iron body. Strainers shall have removable 316 stainless steel or monel screens and shall have perforations to provide a net free area through the screen of at least 3 times that of the entering pipe. Perforations shall be 1/8" diameter for chilled, hot, and make-up water service. Strainers 2-1/2" and larger shall be provided with a plugged gate valve and nipple the full size of the strainer blowdown outlet. Blowdown outlets shall be located at the low point of the strainer. Strainers 2" and smaller shall be threaded. Strainers 2-1/2" and larger shall be flanged.

K. Flexible Pipe Connections: Flexible pipe connections shall be stainless steel corrugated metal hose with high tensile stainless steel wire braid for ferrous pipe and bronze corrugated metal hose with high tensile bronze wire braid with copper pipe. Connections for pipe 2-1/2"
and smaller shall be male pipe thread, and for pipe 3” and larger shall be 150 lb. flange ends.
Minimum pressure rating shall be 150 psig wwp. Rubber hose connectors for closed loop
heat pumps will be furnished with the heat pump units.

2.03 ACCESS PANELS - BUILDING

A. Flush, hinged door, locking type steel access panel and frame. Access panels shall be UL
   fire rated same as structure in which installed.

B. Panel size 24” x 24” unless indicated otherwise on drawings.

C. Frame styles specifically designed for setting in bare masonry, plastered surfaces, dry wall,
or in acoustical tile as required.

2.04 CORROSION RESISTANT COATINGS

A. Acceptable manufacturers: Koppers Bitumastic Super Service Black, Royston Laboratories
   A-51, Johns-Manville “Transtex V20”.

2.05 PIPE HANGERS AND SUPPORTS

A. Products manufactured in accordance with MSS SP58 and conforming to Federal Specification
   WWH171e, MSS SP69, UL203, NFPA13, and NFPA24 are acceptable. The following Grinnell
   figure numbers are used as a guide.

1. Bare Copper Pipe - Fig. CT-99.

2. Bare Steel Pipe - Fig. 260.

3. Insulated Pipe - Fig. 260 sized to fit over insulation and with properly sized Fig. No.
   167 shield.

4. Vertical Pipe - Fig. CT-121 or Fig. 261.
a. Bare copper pipe must be isolated from contact with steel riser clamp by rapping with sheet lead or other acceptable material. Fig. CT-121 coated clamp may be used.

5. Several horizontal pipes in the same plane may be supported on trapeze hangers spaced as required for the smallest pipe.

2.06 SLEEVES

A. Sleeves shall be standard weight steel pipe.

B. Sleeves shall be of sufficient size for pipe and insulation to pass through.

C. Exposed sleeves through floors shall project ½” min. above finished floor.

D. Pro-Set or equal sleeve system may be used in lieu of above.

2.07 DIELECTRIC COUPLINGS

A. Acceptable: Capitol Type CS, Epco FX, and Clearflow Dielectric Waterway.

B. Description: Screwed ends, dielectric isolating section.

2.08 VALVES

A. General:

1. All gate and globe valves shall be designed for repacking under pressure when fully opened and shall be equipped with packing suitable for the intended service.

2. Valves used in copper pipe systems up to and including 3” size shall be similar and equal to those described herein for threaded valves up to 2” size.
3. Face to face and end to end dimensions of valves shall conform to ANSI B16.10.

4. Insofar as possible, all valves of the same type shall be of the same manufacturer.

B. Gate Valves:

1. Valves 2” and smaller shall be bronze body, solid wedge, rising stem, union bonnet, equal to Crane 428UB, Jenkins 4TU, Milwaukee 1152 or Stockham B-105.

2. Valves 2-1/2” and larger shall be flanged and iron body, bronze trim, OS&Y equal to Crane 465-1/2, Jenkins 651-C, Milwaukee F-2885 or Stockham G-623.

C. Globe Valves:

1. Valves 2” and smaller shall be bronze body, union bonnet, integral seat, renewable disc, equal to Crane 7, Jenkins 106A, Milwaukee 590, or Stockham B-22.

2. Valves 2-1/2” and larger shall be iron body, composition disc, flanged ends, bolted bonnet, bronze mounted, equal to Crane 351, Jenkins 613C, Milwaukee F-2981, or Stockham G-512.

D. Check Valves:

1. Valves 2” and smaller shall be bronze body, horizontal swing, Y pattern with removable discs equal to Crane 37, Jenkins 92A, Milwaukee 509, Stockham B-319.

2. Valves 2-1/2” and larger installed horizontally shall be iron body, bolted bonnet, horizontal swing with removable seat and disc equal to Crane 373, Jenkins 624-C, Milwaukee F-2974, Stockham G-931.

3. Valves 2-1/2” and larger installed in vertical position shall be iron body, globe type, silent design, bronze mounted with stainless steel spring and flanged end connections equal to Milwaukee 1800, Mueller 105-AP, APCO 600.
E. Ball Valves:

1. Ball valves shall be 2” and smaller for water and air service and shall have a 2-piece bronze body, teflon seat and brass ball equal to Crane 2180, Jenkins 902-T, Milwaukee BA-200, Stockham S-216-BR-RT. Provide extended handles on insulated piping and memory stop for manual balancing.

F. Butterfly Valves:

1. Butterfly valves for water piping 2-1/2” and larger shall be lug type with extended neck, cast iron body, bronze alloy disc, stainless steel stem equal to Crane 14, Jenkins 232E, Milwaukee ML-1233-E, Stockham LG711BS3E. Provide lever handles on valves 12” and smaller and gear operators on valves larger than 12”.

G. Hose end drain valves shall be gate valves with 3/4” hose thread adapter screwed or soldered into valve.

H. Manual balancing valves, non-calibrated-semi-steel body, neoprene coated, eccentric plug, wrench operator, straightway, memory stop 175 #wog rating.

1. 2” and smaller, screwed ends - Homestead 1512; DeZurik 118S; OIC 811; Milwaukee BBFS100.

2. 2-1/2” and larger, flanged ends - Homestead 1522 and 3” and 4”, 1232 larger; DeZurik 118F, Illinois Products Series 5000.

I. Calibrated Balancing Valves - calibrated for flow balancing, pressure tapping takeoffs, positive shut-off valve with memory stop. Valves shall be supplied with preformed Polyurethane insulation cover.

1. 2” and smaller, screwed ends - Armstrong CBVI; Illinois Series 6000.

2. 2-1/2” and larger, flanged ends - Armstrong CBVII; Illinois Series 6000. (Note: Illinois flow measuring device larger than 1-1/4” must be accompanied by balancing valve
3. A compatible portable flow measurement meter shall be furnished to the owner at the end of the job.

J. Automatic Flow Control Valves:

1. Autoflow, Griswold, or equal, pressure compensating flow control valves in one piece configuration consisting of ground joint union and factory-set flow control unit.

2. Valves shall be brass or stainless steel.

3. Valves must be marked to show direction of flow.

2.09 VIBRATION ISOLATION DEVICES

A. Acceptable: Amber / Booth, Consolidated Kinetics, Korfund, Mason, VECO, and Vibration Mountings and Controls, Inc.

B. Supply all vibration isolation devices from a single manufacturer.

C. Select vibration isolation equipment to give uniform loading and deflection, according to weight distribution of equipment.

D. Spring isolation, generally: spring diameter not less than 0.8 of spring operating height. Provide springs with a minimum additional travel to solid equal to 50% of the rated deflection. Select spring with ratio of horizontal spring constant to vertical spring constant between 1 and 2.

E. Un-housed Spring Type: Provide with leveling bolts for attaching to equipment, vertical
resilient limitstops with a minimum clearance of ½" maintained around restraining bolts and between the housing and spring, limit stops out of contact during normal operation. Size for 1” static deflection.

F. Vibration Hanger: Provide with a steel spring and a double deflecting neoprene element in series. Elastomer element with a minimum static deflection of 1/4”; steel spring static deflection of 1”, except for the two isolators nearest the vibrating equipment with a static deflection of 1-1/2 times, and equal to, the static deflection of the isolated equipment, respectively. Install with spring element concentric to rod. Isolate hanger rod from steel housing with neoprene bushing.

2.12 TEST PLUGS

A. Universal National, ½” N.P.T. brass body, with neoprene test plug valve insert.

B. Acceptable Manufacturers: No. 700 Pete’s Plug or equal.

2.13 PIPING IDENTIFICATION

A. General: Install color coded identification and direction markers after completion of painting and thermal insulation work unless otherwise noted, all in accordance with ANSI Standard A13.1, 1975.


C. Locations:

1. Mechanical Equipment Rooms:

   Within 18” of each point of entry and exit from all rooms.

   Withing 3 feet on each side of each 90-degree elbow, tee, and connection to equipment or vessel.
At not over 20 foot intervals, measured along centerline of pipe.

2. Above Suspended Ceilings:

Within 18 inches of each valve or valve assembly.

At tees, identify both main and branch within 3’-0” of tee.
Within 3 feet of each 90-degree elbow.

3. Piping Concealed in Chases or Shafts: Identify each pipe visible through access door or panel.

4. Piping exposed in rooms other than Mechanical Equipment Areas:

Omit identification on piping ½ inch size and smaller exposed at connections to equipment or plumbing fixtures.

With the above exception, identify at not less than one point each piping run visible in each room, with identification at not over 20 foot intervals measured along centerline of pipe.

2.14 VALVE IDENTIFICATION

A. General: Valves shown on drawings except those isolating individual pieces of equipment shall be identified with brass tags and chart listing all valves by numbers. Each valve identification tag shall be 18-gauge polished brass, 1-1/2 inch diameter with service indicated by 1/4 inch, stamped, black-filled letters and valve number indicated by 7/16-inch stamped, black-filled numerals. Tags shall be fastened to valves with meter seals, brass ‘S’ hooks or brass jack chain to permit easy reading.

B. Identification: Each valve tag shall have an identifying letter designating the system, and an identifying number designating the valve. Identifying letters shall be those utilized in the Legend.
C. A chart of all valves showing the valve identification number, location, purpose, and / or special information shall be mounted in an aluminum frame under 1/8” sheet plastic and secured to a wall as directed. Valve chart wording and numbering shall be approved prior to fabricating tags.

D. Manufacturer: Tags shall be as manufactured by W.H. Brady Company, Seton Name Plate Corporation, or Markem Corporation.

2.15 NAMEPLATES

A. General: Provide for all equipment, motor starters, remote push-button stations, insertion type thermostats, remote bulb thermometers, filter gauges, remote pressure gauges, fans, pumps, equipment, and panel mounted controls. Submit identification number and wording for review by engineer.

B. Designation: The name of each piece of equipment or usage shall be etched in 1/4” maximum, 1/8” minimum high letters and mounted on or adjacent to piece of equipment.

C. Type: White core black or red Bakelite secured with epoxy glue.

2.16 MOTORS

Provide motors for all equipment furnished under Mechanical Sections unless otherwise specified. Motors shall operate using electrical characteristics as shown on the electrical drawings and as specified. Motors shall be Louis-Allis, Gould, Westinghouse, General Electric, or Emerson, except where furnished as part of packaged equipment.

Standards: Except where otherwise specified, motors shall be manufactured according to NEMA Standards. They shall be NEMA Design B, Insulation Class B or F, 40-degrees C. ambient and 40-degrees C. rise. Hermetic motors shall be manufactured according to ARI Standards. Motors ½ HP and larger shall be high efficiency, similar to Gould E plus.
A. Sizes:

1. Motors with standard NEMA Electrical characteristics shall be selected for the design brake horsepower without overload current at rated voltage.

2. Motors with special electrical characteristics, such as hermetic refrigeration motors, shall be selected to produce the brake horsepower required for the specified load without overload current at rated voltage.

B. Enclosures: Motor enclosures shall be open drip-proof, except where otherwise specified. Motors for equipment installed where subject to weather shall be fan cooled, totally enclosed, weatherproof type.

C. Nameplates: Motors shall have a nameplate showing the specified nominal system voltage as nameplate rated voltage. Each motor shall be guaranteed to operate satisfactorily at the specified nominal system voltage, plus or minus 10%.

2.17 STARTERS

A. Furnish all starters (except where included in motor controls centers), contractors, motor switches, and start-stop stations. Where located inside the building, starter and motor enclosures shall be NEMA type 1 general purpose, and where located outside the building, shall be NEMA type 3R except where otherwise noted on the drawings. See Electrical Division for motor control centers.

B. Three phase motors shall be provided with magnetic across-the-line starters with overload protection on each phase. Furnish starters with hand-off-automatic selector switch and reset button in cover.

C. Single phase motors less than ½ HP shall be provided with relays or switches with overload protection.
D. Equipment furnished with factory installed motor starter units shall also be equipped with individual motor branch circuit protective devices interconnected on their line sides to lugs sized to receive a feeder with minimum ampacity of 125% of total connected load.

E. Starters shall be Allen Bradley, Cutler Hammer, Square-D, General Electric, Westinghouse, Jocelyn Clark, or equal.

2.18 STEEL EQUIPMENT BASES AND SUPPORTS:

A. Fabricate from steel structural shapes by welding. Where members must be removable, assemble with bolted joints.

B. Form corners in angle frames with joints mitered, welded, and ground smooth.

C. Finish steel bases and supports in 2-part rust resistive oil paint system with primer and top coat to light gray color.

PART 3 - EXECUTION

3.01 SLEEVES

A. Sleeves shall be spaced sufficient distance from adjacent walls and other sleeves so that insulation, floor, wall, and ceiling plates may be installed without cutting insulation or plates.

B. Sleeves through slabs and outside walls below grade shall be caulked water-proof. Caulk other sleeves in floor slabs with non-shrink grout or concrete.

C. Piping passing under column footings, or under or through wall footings, foundations or retaining walls shall be provided with a relieving arch, or an iron pipe sleeve two pipe sizes greater than the pipe passing through.

D. Provide sleeves for piping passing through masonry walls, partitions, floors, and roofs except
for cast iron piping which may be built into masonry walls and partitions.

E. Cut wall sleeves full thickness of walls.

F. Where pipes passing through sleeves are to be covered, size sleeves large enough to allow for full thickness covering.

G. Omit pipe sleeves in concrete slabs on grade.

H. Provide sleeve lay-out for slabs above grade, including roof, for approval by structural engineer and architect showing location and size before slabs are formed.

I. Sleeve system such as Pro-Set or equal shall be installed in accordance with manufacturer's recommendations.

J. Annular space between sleeve and pipe shall be packed with approved fire stopping material. See “Fire Stopping” in Section 15010.

K. Provide sleeves on thermally expandable piping penetrations through fire or smoke rated gypboard construction partitions. The sleeves shall extend a minimum of 3” on either side of the partition and the annular space shall be filled with a fire stopping material in such a way as to maintain a fire endurance rating equivalent to that of the adjacent wall.

L. Isolate non-ferrous piping from slab on grade with armaflex or equal insulation.

M. Piping penetrations made AFTER installation of wall shall be cored with a coring machine. Block shall not be knocked out with a hammer.

3.02 SUPPORT OF PIPING

A. Support steel piping 1” and smaller on centers not more than 8’ apart. Support piping larger than 1” on centers not more than 10’ apart.
B. Support copper tubing 1-1/4” or larger size not more than 10’ apart. Support copper tubing in sizes 1” and smaller not more than 6’ apart.

C. Support soil, waste, and vent stacks and inside downspouts at the base by means of heavy hangers or riser clamps close to the bottom of the stack.

D. Support each horizontal length of cast iron pipe, not counting the fitting, not exceeding 10’-0” on centers.

E. Support all piping within 1’ of each change in direction and at each branch connection.

F. Provide pipe hangers with rods and supports proportioned to the actual size of pipe supported with allowance for weight of insulation and contents.

G. Support hot and cold water plumbing piping in spaces back of plumbing fixtures with heavy duty ABS brackets and u-bolts secured to cast iron stacks.

H. Provide insulation protectors for insulated piping supported on gang or clevis hangers.

I. Do not penetrate exterior walls of the building below grade with support bolts.

J. Do not run piping over or within 3’-6” of electrical switchgear or panelboards in mechanical spaces. No piping is permitted in space dedicated to electrical equipment rooms.

K. Condensate drain piping shall be pitched in the direction of flow not less than 1/4” per foot.

L. Provide strainer ahead of each pump suction, trap, and automatic valve.

M. Provide unions in piping at valves and equipment connections.

1. Screwed Piping - Malleable iron, ground joint, brass seated, 2” pipe size and smaller.

2. Welded Piping - Flanged with same gaskets as at pipe fittings, 2-1/2” pipe size and
N. Bed body of piping underground on solid ground.

O. Install air piping with slope of 1” fall per 40’ toward receiver of blow off point.

P. Provide vibration isolation device on first three pipe hangers from rotating mechanical equipment over one horsepower.

Q. Vertical piping shall be supported at each floor. Riser clamp must rest firmly on floor - not on sleeve.

R. Perforated strap hanger or similar material will not be permitted.

3.03 PROCEDURES FOR PIPE JOINTS

A. Threaded Pipe Connections:

1. Ends of pipe shall be cleaned and reamed.

2. Joints shall be made with pipe thread lubricant suitable for service intended, applied to male threads only.

B. Soldering of Pipe:

1. Ends of pipe shall be cleaned with sand cloth or wire brush.

2. Flux shall be evenly applied to both pipe end and fittings. Flux shall be of type recommended by its manufacturer for the type of solder used. Brazing flux shall be used for solder or 1000-degrees F. or higher melting point.

3. Solder shall completely fill socket of joints. Do not back up joints with solder
dissimilar to that used in joints.

C. Mechanically Formed Tee Connections:

1. Mechanically extracted collars shall be formed in a continuous operation consisting of drilling a pilot hole and drawing out the tube surface to form a collar having a height of not less than three times the thickness of the tube wall. The collaring device shall be fully adjustable as to insure proper tolerance and complete uniformity of the joint.

2. The joining branch tube shall be notched and dimpled in a single process so as to set the proper penetration of the branch tube into the fitting to assure a free flow joint.

3. All joints shall be brazed in accordance with the Copper Development Association Copper Tube Handbook using B-cup series filler metal. Note: Soft soldered joints will not be permitted.

4. All mechanically formed branch collars shall be as approved by local National Standard Plumbing Code, B.O.C.A., I.A.M.P.C., or S.B.C.C.

D. Cast Iron Pipe - Hub and Spigot: Joint shall be firmly packed with white oakum and filled with molten lead not less than one inch (1”) deep. Joints shall be well caulked. For gasketed joints, hub, spigot, and gasket manufacturer to prevent damage and facilitate joining.

E. Cast Iron Pipe - No Hub: Couplings shall be used to join pipe in accordance with pipe manufacturer’s recommendation and shall be installed using torque wrench made for this purpose. Vent piping shall be joined by standard no-hub couplings. Soil, waste, and rainwater piping shall be joined with heavy duty, Husky or Tyler, no-hub couplings.

3.04 UNDERGROUND PIPING

A. Underground ferrous piping unless noted otherwise shall have factory applied corrosion resistant coating. Fittings and weld joints shall be coated with product specified here-in.
3.05** UNIONS**

A. Provide unions at connections to valves and equipment to allow dismantling of pipe connections without cutting pipe.

B. Flanged connections are considered as unions.

3.06** REDUCERS**

A. Use eccentric reducers for all pipe size changes in horizontal straight thru piping 1 1/4" and larger.

B. Eccentric Reducers

1. Reducers shall be installed with flat on top in chilled water and hot water piping systems.

2. Reducers shall be installed with flat on bottom in steam piping.

C. Concentric reducers shall be used only in vertical piping.

3.07** INSTALLATION OF INSTRUMENTATION**

A. Provide water pressure gauges and gauge manifolds, gauge connection points, thermometers and wells, test wells, and instrument ports in locations specified or indicated on the drawings.

B. Mount instruments in locations and positions to give accurate reading of the measured condition and to be readable from the floor. Locate pairs of instruments to allow reading of both from same point.

C. Mount instruments for reading pressure drops with taps at points for which published pressure drop data are available.
D. Locate test walls with bore more than 30-degrees above horizontal to permit retention of heat transfer material. Locate test wells at chillers to allow use of glass thermometers up to 24" long.

E. Select wells for thermometers in piping with 3\(\frac{1}{2}\)" stems for 6" and smaller piping and 6" stems for 8" and larger piping, with extension necks of length to extend clear of insulation.

F. Instrument Locations:

1. Where indicated on the drawings.

G. Calibrate and adjust instruments after installation. Set up air filter gauges for clean filter pressure drop.

H. Mount pressure and temperature measuring stations in side of tee or in coupling on large pipe.

### 3.08 TESTING

A. All piping shall be tested to the pressure and for the period of time listed, and shall hold the specified pressures at the low point of the system for the specified length of time without perceptible loss of pressure of leakage.

1. Space Heating, Chilled Water, Hot Water, Compressed Air, Cold Water, Domestic Hot Water, and Hot Water Circulation Piping: One hundred twenty-five pounds hydrostatic pressure for two hours (125 psig - 2 hours).

2. Soil, Waste, and Vent Piping: A water test shall be applied to the system in sections. Each opening shall be tightly plugged except the highest opening of the sections, at least the upper ten feet of the preceding section shall be retested so that all but uppermost ten feet of the system shall have been submitted to a test of not less than 10' of water. The water level shall remain constant for not less than 15
minutes; the system shall be tight at all points.

3. Compressed Air Piping: 175 PSIG hydrostatic pressure for two hours.

4. Gas Piping - fifty pounds of air pressure for one hour. In addition each joint and connection shall receive a soap bubble test.

5. Correct or replace items shown by test to be defective and retest to assure tightness.

3.09 CLEANING

A. All water piping shall be thoroughly flushed. All strainers and aerators shall be cleaned after flush.

B. After cleaning, fill systems with water, vent air from piping and equipment, start pumps and verify flow.

3.10 DISINFECTIONS OF PIPING

A. All domestic water supply lines shall be disinfected BEFORE THEY ARE PLACED IN OPERATION. The system shall be filled with a chlorinated water solution containing not less than fifty (50) parts per million of chlorine solution. Following a contact period of not less than twenty-four (24) hours, the chlorinated water shall be flushed from the system with clear water until the residual chlorine content is not greater than two-tenths (0.2) parts per million.

B. Contractor shall submit to the Architect, in triplicate a letter of certification from an independent Testing Lab acceptable to the Georgia Department of Public Health stating that above disinfection procedure has been completed satisfactorily.

3.11 DIELECTRIC CONNECTIONS

A. Use dielectric couplings to join pipe of dissimilar metals.
3.12 INSTALLATION OF STEEL EQUIPMENT BASES AND SUPPORTS

A. Establish base location, coordinate for 4” housekeeping pad under each base, anchor base to pad.

B. Suspended Equipment

1. Attach steel members to structure over suspension points on equipment.
2. Install hanger rods and bolts at suspension points, attached to steel members.
3. Mount equipment with rods and bolts to suspension points.
4. Adjust hanger rods and bolts to make equipment level.
5. Make screwed attachments secure by double-nutting.

C. Coordinate installation of bases and supports with vibration isolation requirements where required.

3.13 PUMP SUCTION DIFFUSERS AND STRAINERS

A. Contractor to furnish and install pipe support leg positioned to relieve any stress on pumps.
B. Brass start-up strainer shall be removed after flush and reasonable running period and before system balancing procedure.
C. Allow ample space for removal and service.

3.14 VALVES

A. All gate, globe, butterfly, and ball valves shall be installed with stems above the horizontal position.

3.15 AIR VENTS

A. Automatic Air Vents shall be installed on Air Purger and as indicated on plans. Manual Air
VENT PIPING

A. Provide vent piping from the relief opening of each gas pressure regulator and gas pressure switch in the boiler gas trains to a point outside the building at least 10’ above finished grade, and at least 5’ from any building opening. The vent connection to each regulator or switch shall be increased when 2 or more appliances have been connected so that the common vent will be equal or greater than the sum of the cross sectional areas of all individual vents involved. The common vent shall be a minimum of 3/4” size. Vents from regulators in high pressure gas piping, above 1/2” psig, shall each be run independently to the exterior. Terminate vent lines with an OPW 113 flash arrestor.
PART 1 - GENERAL

1.01 This section covers basic electrical materials and wiring, and all items of equipment not otherwise specified under other sections of the Specifications.

1.02 APPLIANCE AND EQUIPMENT CONNECTIONS

A. Provide PVC insulated flexible cord sets for all cord and plug connected contract building appliances and equipment. Cords shall be sized in accordance with electrical circuits indicated on the drawings. Multiple conductor cords shall be type “SO” cable with PVC jacket and green insulated ground conductor.

1.03 MOTORS

A. Motors except where specified herein, shall be furnished under other sections of the Specifications. Confirm motor locations.

B. Motors shall be of the voltage and phase characteristics as shown on the drawings.

C. The horsepower ratings indicated are for guidance and do not limit the equipment size. When electrically driven equipment furnished under other sections of these Specifications differs from the contemplated design, the Contractor shall be responsible for the necessary adjustments to the wiring, disconnect devices, and branch circuit protection to accommodate the equipment installed.

1.04 MOTOR WIRING

A. Furnish and install power wiring to motors and mechanical equipment. Wiring into motor or equipment terminals shall be complete with connections through associated disconnect switches, and motor starters, including branch circuit power line controlling devices.

B. Receive, store, and install individually mounted starters and controllers for motors.
C. Wiring shall be in conduit, with a final connection to rotating equipment made through a section of PVC jacketed flexible conduit.

D. Multi-speed, reversible, and reduced voltage start motors shall be connected as recommended by equipment manufacturer.

E. Motors shall be grounded as specified under “Grounding System”.

1.05 CONTROL WIRING

A. Control wiring and empty conduits for control wiring to be furnished under this section shall be furnished only to the extent indicated on the electrical drawings.

B. Control wiring is defined as that wiring which provides connections between control circuit elements and does not provide the power circuit into motor or heating equipment terminals. Where a control device, such as push-button, thermostat, firestat, is to be installed in the branch circuit power lines, these devices shall be received, stored, and installed as indicated on the drawings and called for under “Motor Wiring” and “Electric Heaters”

C. Coordinate the installation of branch circuit power line control devices with requirements in other sections of the Specifications.

1.06 RATED PENETRATIONS

A. All rated wall and floor penetrations shall be sealed with a UL listed sealant to maintain the rating.

PART 2 - PRODUCTS

2.01 PLYWOOD BACKBOARDS

A. Provide flame retardant plywood backboards for distribution equipment surface mounted in equipment areas such as mechanical rooms, electrical closets, and equipment rooms.
B. Backboards shall be minimum 3/4” thick and sized to accommodate equipment indicated on the drawings.

C. Secure backboards to the building structure and paint with two coats of fire resistant flat black Duron paint.

2.02 DISCONNECT SWITCHES

A. Disconnect switches shall be quick-make, quick-break Underwriters’ labeled Heavy Duty safety switches. Switch ratings shall be for the applied voltage and current.

B. Disconnect switch enclosures:

1. For indoor - NEMA 1 general purpose.
2. For outdoor - NEMA 3R raintight.

C. Manufacturers: General electric, Westinghouse, ITE, Square D.

D. Designate with permanent labels, the maximum allowable fusing capacity for fusible switches that are applied with conductors rated less than the switch rating.

E. Disconnects for 120V motors ½ HP or less shall be horsepower rated toggle switches in steel outlet boxes.

2.02 FUSES

A. Install fuses in fusible protective devices.

B. Provide NEC, dual element time-delay, or current limiting, fuses for specific applications only where indicated on the drawings.

C. Fuse specification - See Section 16181.
2.03 LABELS

A. Provide labels on the outside face of panelboards, switchboards, disconnect switches, motor starters, transfer switch, and contactors.

B. Labels shall be a micarta nameplate with ½” high white letters. Nameplates shall be red on emergency equipment and black on normal equipment. Secure labels with screws or pop-rivets.

PART 3 - EXECUTION

3.01 UTILITY COMPANY COORDINATION

A. Coordinate with the electrical Utility and verify location and orientation of service equipment and associated metering equipment.

B. Provide and install all materials designated by the Electrical Utility to be furnished by “Customer”. This may include but not be limited to, compression lugs for transformer secondary connection, concrete pad for serria transformer, grounding material, meter base and empty conduits for primary lines.

3.02 BRANCH CIRCUITS

A. Provide dedicated neutral for any branch circuit serving dimmable lighting fixtures and copying machines.

END OF SECTION
BARROW COUNTY AMBULANCE BUILDING
59 LEE ST
WINDER, GEORGIA
BID SET JULY, 31 2018

LIST OF SHEETS

INFORMATION
T 1.0 COVER SHEET
Date: N/A Remarks: X

ARCHITECTURAL
A 1.0 FLOOR PLAN
A 1.1 REFLECTED CEILING PLAN

CIVIL
C 1 SITE PLAN

STRUCTURAL
S 1.0 FOUNDATION PLAN

BUILDING CODE REVIEW - BARROW COUNTY AMBULANCE FACILITY
INCLUDING INSTRUCTIONS - SINGLE STORY, TYPE IIB UNPROTECTED, NON-SPRINKLERED CONSTRUCTION.
AMBULANCE FACILITY. A FIRE ALARM SYSTEM IS REQUIRED.

PHYSICAL ASPECTS - NO SURRENDER TEXT.

CARTER WATKINS ASSOCIATES, INC.
ARCHITECTS
POST OFFICE BOX 1004
137 EAST WASHINGTON STREET
MONROE, GEORGIA 30655
Fax: 770/267-1064
email@carterwatkins.com
www.carterwatkins.com

BUILDING CODE REVIEW - CONSTRUCTION TYPES
FACILITY IS ONE-STORY, SLAB-ON-GRADE WITH STEEL STRUCTURE AND METAL WALLS, AND METAL ROOF.
TOTAL SQUARE FOOTAGE IS 900.

BUILDING IS CONSIDERED S-1 STORAGE OCCUPANCY PER SECTION 304.1 T503 ALLOWABLE HEIGHTS AND AREA - 2 STORIES OR 17,500 S.F.

LIFE SAFETY CODE REVIEW - NFPA 101 2012 EDITION
STORAGE OCCUPANCY ANALYSIS NFPA CHAPTER 42 - OCCUPANT LOAD T7.3.1.2 - 900 S.F. WITH N/A S.F. PER OCCUPANT.
HOWEVER, IF WE USE STORAGE IN OTHER OCCUPANCIES, THE OCCUPANT LOAD IS 1 PERSON PER 500 S.F. = 2 OCCUPANTS
TOTAL STORAGE OCCUPANT LOAD: 2 OCCUPANTS

MEANS OF EGRESS - 42.2.4, 1) IN LOW HAZARD STORAGE OCCUPANCIES, A SINGLE MEANS OF EGRESS SHALL BE PERMITTED FROM ANY STORY OR SECTION.
PROVIDE EMERGENCY LIGHTING, ILLUMINATION OF MEANS OF EGRESS COMPLYING WITH 42.2.8 THROUGH 42.2.10.

PROTECTION - 42.3.4 - A FIRE ALARM WILL BE REQUIRED COMPLYING WITH SECTION 9.6 AND NFPA 72. INITIATION SHALL BE BY MANUAL PULL STATIONS LOCATED ADJACENT THE EXIT.

FOR INFORMATION AND QUESTIONS REGARDING THE LIFE SAFETY CODE (NFPA 101) OR THE GEORGIA ACCESSIBILITY CODE PLEASE CONTACT THE STATE FIRE MARSHAL'S OFFICE.

CURRENT MANDATORY CODES AS ADOPTED BY DCA:
· INTERNATIONAL FIRE CODE, 2012 EDITION, WITH GEORGIA AMENDMENTS (2014)
· NATIONAL ELECTRICAL CODE, 2017 EDITION (NO GEORGIA AMENDMENTS)
· INTERNATIONAL SWIMMING POOL AND SPA CODE, 2012 EDITION, WITH GEORGIA AMENDMENTS (2014)

INFORMATION AND QUESTIONS REGARDING THE LIFE SAFETY CODE, RECOMMENDATIONS, OR THE ACCESSIBILITY CODE CAN BE DIRECTED TO THE STATE FIRE MARSHAL'S OFFICE.
NEW 8' THK CONCRETE SLAB APRON
CONNECT TO EXISTING WATER LINES - PROVIDE 3/4" PIPE & METER.
PROVIDE BACKFLOW PREVENTER AND CHECK VALVE

NEW SIDEWALK

PROVIDE OVERHEAD POWER MAST, 200 AMP PANEL, DISCONNECT AND GROUND WIRING.

30'-0"

20'
5' x 5' x 20" W/ EXPANSION JOINT FILLER 5' x 5' x 20" W/ EXPANSION JOINT FILLER

Rounded. 3. CONTROL JOINTS ARE TO BE CUT THE FOLLOWING DAY.

5'-0" X 30' EDGE OF CONCRETE      1/2" = 1'-0"

4. REFER TO ARCHITECTURAL/MECHANICAL FOR SLAB FINISHES, SLAB DEPRESSIONS, ELEVATIONS, INTERSECTIONS.

5000 PSI CONCRETE FOOTING WITH 6x6-W1.4 x W1.4 WWM.

6. COLUMN BOX-OUTS SHALL BE USED TO ISOLATE AN ADEQUATE AREA AROUND COLUMN BASE FOR FILLING WITH CONCRETE. EXCAVATED TO A DEPTH OF VERIFIABLE DESIGN PRESSURE AND BACKFILLED WITH 57 STONE TO A LEVEL OF FOUNDATION BEARING. THIS SHALL BE QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY THE DESIGN ASSUMPTIONS OF DESIGN PRESSURE.

7. FOUNDATION AT RIGID FRAME

8. SLAB EDGE

9. CONTROL JOINTS ARE TO BE CUT THE FOLLOWING DAY.

EXPOSED WALLS    1 1/2" INTERIOR SLABS    1"

10. CONCRETE CAST AGAINST EARTH 3" STEEL SHALL BE AS FOLLOWS: F. COLUMN BOX-OUTS SHALL BE USED TO ISOLATE AN ADEQUATE AREA AROUND COLUMN BASE FOR FILLING WITH CONCRETE. EXCAVATED TO A DEPTH OF VERIFIABLE DESIGN PRESSURE AND BACKFILLED WITH 57 STONE TO A LEVEL OF FOUNDATION BEARING. THIS SHALL BE QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY THE DESIGN ASSUMPTIONS OF DESIGN PRESSURE.

11. FOUNDATION PLAN

12. FOUNDATION PLAN

NOTE: ROLLARDS TO BE PILED LOADED BY CONTRACTOR. EARTH ENVELOPE OF EXCAVATION TO BE 1'-0" DEEP.

13. CONTROL JOINT TO BE FORCED FROM TOP 6" FLOORS AND 12" TO TOP OF FOOTING PRIOR TO FILLING WITH CONCRETE.

1/2" = 1'-0"
1. PROVIDE 200 AMP SINGLE-PHASE ELECTRICAL PANEL AND DISCONNECT.
2. PROVIDE COMPLETE ELECTRICAL INSTALLATION W/ CONNECTION BACK TO TRANSFORMER.
3. PROVIDE WIRING IN METAL CONDUIT TO ALL LIGHTS, SWITCHES, EQUIPMENT, ETC.
4. COORDINATE RECEPTACLE & SWITCH LOCATION ARE VOLTAGE (110/220) W/ OWNER.
5. PROVIDE HANGING SYSTEM FOR LIGHTING.
8. PROVIDE POWER AND LOW VOLTAGE WIRING FOR HEATERS.

LITHONIA  L96 LED STRIP LIGHT - MODEL IBHST 18000LM SD080 MD 240 0Z10 50K 80CRI W/ BATTERY PACK, SURGE PROTECTION AND STANDARD WIRE GUARD.
TRACE WALL PACK @ 15'-8" - LIL LED 40K MVOLT PEBB DDBTXD.
KITCHLER LED OUTDOOR LANTERN.
FOSTORIA ELECTRIC INFRARED HEATER - MODEL FSS-9524-3.
LED EXIT SIGN - EMERG-LITE #BR LXN RM.
PULL STATION HORN AND STROBE.
SMOKE DETECTOR.
EMERGENCY LIGHTS WITH BATTERY BACK-UP - EMERG-LITE #B12JCM36 2.
THERMOSTAT/SWITCH.

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PROPOSAL SUBMITTAL FORM

Project Location: 59 Lee Street Winder, GA

The undersigned CONTRACTOR, having examined these documents, and having full knowledge of the condition under which the work described herein must be performed, hereby proposes that she/he will fulfill the obligations contain herein in accordance with all instructions, terms, conditions, and specifications set forth; and that she/he will furnish all required products/services and pay all incidental costs in strict conformity with these documents for the stated prices as payment in full.

Base Proposal $ __________________________________________________________________________

Alternates (if any) $ _________________

Alternate 1 - $ _________________
Alternate 2: - $ _________________
Alternate 3: - $ _________________
Alternate 4: $ _________________

Submitting Firm: __________________________________________________________________________

Address: _________________________________________________________________________________

Name and Title of Authorized Representative (print/type): __________________________________________

Authorized Signature: _______________________________________________________________________

(Signature-When signed, this proposal is legal and binding to the Barrow County Board of Commissioners and acknowledges that ALL Specifications, Terms and Conditions and/or instructions to Bidders have been read and understood).

Date: ____________________________________________________________________________________

Email: ____________________________________________________________________________________

FIRMPRICING - Prices submitted on this bid form are firm through (minimum 60 days).

Initial below for Acknowledgement of Addenda (if any)

________Addendum #1  _______Addendum #2  _______Addendum #3  _______Addendum #4
REFERENCES

Project: _________________________________________ Value: ________________
Owner: _______________________________________________________________________
Address: ____________________________________________________________________
Contact Person: ______________________________________________________________________
Contact Title, Phone No., & Email Address: __________________________________________
______________________________________________________________________________

Project: _________________________________________ Value: ________________
Owner: _______________________________________________________________________
Address: ____________________________________________________________________
Contact Person: ______________________________________________________________________
Contact Title, Phone No., & Email Address: __________________________________________
______________________________________________________________________________

Project: _________________________________________ Value: ________________
Owner: _______________________________________________________________________
Address: ____________________________________________________________________
Contact Person: ______________________________________________________________________
Contact Title, Phone No., & Email Address: __________________________________________
______________________________________________________________________________
Project: __________________________ Value: __________

Owner: _________________________________________________

Address: _______________________________________________

_______________________________________________________________________

Contact Person: _____________________________________________

Contact Title, Phone No., & Email Address: __________________________

_______________________________________________________________________

Project: __________________________ Value: __________

Owner: _________________________________________________

Address: _______________________________________________

_______________________________________________________________________

Contact Person: _____________________________________________

Contact Title, Phone No., & Email Address: __________________________

_______________________________________________________________________

Project: __________________________ Value: __________

Owner: _________________________________________________

Address: _______________________________________________

_______________________________________________________________________

Contact Person: _____________________________________________

Contact Title, Phone No., & Email Address: __________________________

_______________________________________________________________________
NOTICE TO PROCEED

TO: __________________________________________
| ____________________________ |
| ____________________________ |
| ____________________________ |

PROJECT DESCRIPTION: **RFP2019-5 Ambulance Facility**

You are hereby notified to commence Work in accordance with the Agreement dated ______________ on or before ______________ and you are to complete the Work in accordance with Agreement.

Date this ___ day of _____________, 2018.

BY: ______________________________, Michael R. Renshaw, County Manager
BARROW COUNTY BOARD OF COMMISSIONERS (OWNER)

Receipt of the above “Notice to Proceed” is hereby acknowledged by ______________
| ____________________________________________ |
| ____________________________ |
| ____________________________ |

BY: ______________________________ (CONTRACTOR)
TITLE: ______________________________
BARROW COUNTY CONSTRUCTION SERVICES AGREEMENT

AMBULANCE FACILITY

This Construction Services Agreement (the “Agreement”) is made and entered into this _ day of ____________, 20__ (the “Effective Date”), by and between BARROW COUNTY, GEORGIA, a political subdivision of the State of Georgia, (“County”) and ____________________________________________ , a _____________________ (hereinafter referred to as the “Contractor”), collectively referred to herein as the "Parties".

W I T N E S S E T H:

WHEREAS, the County desires to retain a contractor to perform services for the construction of a Project (defined below); and

WHEREAS, the Contractor has represented that it is qualified by training and experience to perform the Work (defined below) and desires to perform the Work under the terms and conditions provided in the Contract Documents (defined below).

NOW THEREFORE, for and in consideration of the mutual promises, the public purposes, and the acknowledgements and agreements contained herein and other good and adequate consideration, the sufficiency of which is hereby acknowledged, the Parties hereto do mutually agree as follows:

Section 1. Contract Documents

This Agreement along with the following documents, attached hereto (except as expressly noted otherwise below) and incorporated herein by reference, constitute the “Contract Documents”:

A. Scope of Work, attached hereto as “Exhibit A”;
B. Insurance Certificate(s), attached hereto as “Exhibit B”;  
C. Contractor Affidavit, attached hereto as “Exhibits C”;  
D. Subcontractor Affidavit, attached hereto as “Exhibit D”;  
E. Barrow County Code of Ethics (codified in the official Code of Barrow County); and  
F. The following, which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Change Orders (defined in Section 6 below), other written amendments, and other documents amending, modifying, or supplementing the Contract Documents if properly adopted in writing and executed by the Parties.

In the event of any discrepancy among the terms of the various Contract Documents, the provision most beneficial to the County, as determined by the County in its sole discretion, shall govern.
Section 2. The Work

A general description of the Project is as follows: The “Project” consists of the construction of a new Ambulance Facility. The building is a 30’ x 30’ Pre-engineered Metal Building with 1:12 roof slope and Kynar wall and roof panels. Lateral bracing to be in the rear two bays on each side. The building has one walk door and a 14’x 14’ electric operable overhead door. Refer to the drawings and project manual as prepared by CARTER WATKINS ASSOCIATES ARCHITECTS, INC. included in this RFP. Contracting shall be by means of a Contract for Construction between one Contractor and Barrow County. Barrow County will perform required demolition of the existing concrete slab and removal of the existing fence. Contractor to provide building construction, concrete drive and sidewalks and removal of concrete curb and gutter at existing parking in order to tie new concrete apron into the paving (the “Project”). The Work to be completed under this Agreement (the “Work”) includes, but shall not be limited to, the work described in the Scope of Work provided in “Exhibit A”, attached hereto and incorporated herein by reference. The Work includes all material, labor, insurance, tools, equipment, machinery, water, heat, utilities, transportation, facilities, services and any other miscellaneous items and work reasonably inferable from the Contract Documents. The term “reasonably inferable” takes into consideration the understanding of the Parties that some details necessary for proper execution and completion of the Work may not be shown on the drawings or included in the specifications or Scope of Work, but they are a requirement of the Work if they are a usual and customary component of the Work or are otherwise necessary for proper and complete installation and operation of the Work. Contractor shall complete the Work in strict accordance with the Contract Documents.

Section 3. Work Changes

Any changes to the Work requiring an increase in the Contract Price (defined below) shall require a written change order executed by the County in accordance with its purchasing regulations.

Section 4. Contract Term; Termination

Contractor understands that time is of the essence of this Agreement and warrants and represents that it will perform the Work in a prompt and timely manner, which shall not impose delays on the progress of the Work. Contractor shall commence Work pursuant to this Agreement on or before the start date to be specified on a written “Notice to Proceed” issued by the County and shall fully complete the Work within 120 days of the start date specified in the “Notice to Proceed.” The County may terminate this Agreement for convenience at any time upon providing written notice thereof to Contractor. Provided that no damages are due to the County for Contractor’s breach of this Agreement, the County shall pay Contractor for Work performed to date in accordance with Section 5 herein.

Section 5. Compensation; Method of Payment

The total amount paid under this Agreement as compensation for Work performed and reimbursement for costs incurred shall not, in any case, exceed $________.__ (the “Contract
Price”), except as outlined in Section 3 above. The compensation for Work performed shall be based upon **lump sum amount as listed in Exhibit A**, and Contractor represents that the Contract Price is sufficient to perform all of the Work set forth in and contemplated by this Agreement. Contractor shall take no calculated risk in the performance of the Work. Specifically, Contractor agrees that in the event it cannot perform the Work within the budgetary limitations established without disregarding sound principles of Contractor’s industry, Contractor will give written notice thereof immediately to the County.

County agrees to pay Contractor for the Work performed and costs incurred by Contractor upon the County’s certification that the Work was actually performed and costs actually incurred in accordance with this Agreement. No payments will be made for unauthorized work. Compensation for Work performed and, if applicable, reimbursement for costs incurred shall be paid to Contractor upon the County’s receipt and approval of invoices setting forth in detail the Work performed and costs incurred, along with all supporting documents required by the Contract Documents or requested by the County to process the invoice. Invoices shall be submitted on a monthly basis, and such invoices shall reflect costs incurred versus costs budgeted. Each invoice shall be accompanied by an Interim Waiver and Release upon Payment (or a Waiver and Release upon Final Payment, as appropriate) procured by the Contractor from all subcontractors in accordance with O.C.G.A. § 44-14-366.

Section 6. **Covenants of Contractor**

A. **Ethics Code; Conflict of Interest.** Contractor agrees that it shall not engage in any activity or conduct that would result in a violation of the Barrow County Code of Ethics or any other similar law or regulation. Contractor certifies that to the best of his knowledge no circumstances exist which will cause a conflict of interest in performing the Work.

B. **Expertise of Contractor; County’s Reliance on the Work.** The Contractor acknowledges and agrees that the County does not undertake to approve or pass upon matters of expertise of the Contractor and that, therefore, the County bears no responsibility for Contractor’s Work performed under this Agreement. The County will not, and need not, inquire into adequacy, fitness, suitability or correctness of Contractor’s performance. The Contractor acknowledges and agrees that the acceptance or approval of any Work by the County is limited to the function of determining whether there has been compliance with what is required to be produced under this Agreement and shall not relieve Contractor of the responsibility for adequacy, fitness, suitability, and correctness of Contractor’s Work under professional and industry standards.

C. **Contractor’s Reliance on Submissions by the County.** Contractor must have timely information and input from the County in order to perform the Work required under this Agreement. Contractor is entitled to rely upon information provided by the County, but Contractor shall be required to provide immediate written notice to the County if Contractor knows or reasonably should know that any information provided by the County is erroneous, inconsistent, or otherwise problematic.

D. **Contractor’s Representative; Meetings.** _________________ shall be authorized to act on Contractor’s behalf with respect to the Work as Contractor’s designated representative. Contractor
shall meet with County’s personnel or designated representatives to resolve technical or contractual problems that may occur during the term of this Agreement at no additional cost to County.

E. Independent Contractor. Contractor hereby covenants and declares that it is engaged in an independent business and agrees to perform the Work as an independent contractor. The Contractor agrees to be solely responsible for its own matters relating to the time and place the Work is performed and the method used to perform such Work; the instrumentalities, tools, supplies, and/or materials necessary to complete the Work; hiring and payment of subcontractors, agents, or employees to complete the Work, including compliance with Social Security, withholding, and all other regulations governing such matters. Any provisions of this Agreement that may appear to give the County the right to exercise a measure of control over such services will be deemed to mean that Contractor shall follow the directions of the County with regard to the results of such services only. Inasmuch as the County and the Contractor are independent of each other, neither has the authority to bind the other to any third person or otherwise to act in any way as the representative of the other, unless otherwise expressly agreed to in writing signed by both Parties hereto. The Contractor agrees not to represent itself as the County’s agent for any purpose to any party or to allow any employee of the Contractor to do so, unless specifically authorized, in advance and in writing, to do so, and then only for the limited purpose stated in such authorization. The Contractor shall assume full liability for any contracts or agreements the Contractor enters into on behalf of the County without the express knowledge and prior written consent of the County.

F. Responsibility of Contractor and Indemnification of County. Contractor covenants and agrees to take and assume all responsibility for the Work rendered in connection with this Agreement. Contractor shall bear all losses and damages directly or indirectly resulting to it and/or the County on account of the performance or character of the Work rendered pursuant to this Agreement. Contractor shall defend, indemnify, and hold harmless the County and the County’s elected and appointed officials, officers, boards, commissions, employees, representatives, consultants, servants, agents, attorneys and volunteers (individually an “Indemnified Party” and collectively “Indemnified Parties”) from and against any and all claims, suits, actions, judgments, injuries, damages, losses, costs, expenses and liability of any kind whatsoever, including, but not limited to, attorney’s fees and costs of defense (“Liabilities”), which may arise from or be the result of a willful, negligent, or tortious act or omission arising out of the Work, performance of contracted services, or operations by the Contractor, any subcontractor, anyone directly or indirectly employed by the Contractor or subcontractor, or anyone for whose acts the Contractor or subcontractor may be liable, regardless of whether or not the negligent act or omission is caused in part by a party indemnified hereunder. This indemnity obligation does not include Liabilities caused by or resulting from the sole negligence of an Indemnified Party. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this provision. This obligation to indemnify, defend, and hold harmless the Indemnified Party(ies) shall survive expiration or termination of this Agreement, provided that the claims are based upon or arise out of actions or omissions that occurred during the performance of this Agreement.
G. Insurance.

(1) Requirements: The Contractor shall have and maintain in full force and effect for the duration of this Agreement, insurance insuring against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work by the Contractor, its agents, representatives, employees or subcontractors. All policies shall be subject to approval by the County as to form and content. These requirements are subject to amendment or waiver if so approved in writing by the County Manager.

(2) Minimum Limits of Insurance: Contractor shall maintain the following insurance policies with coverage and limits no less than:

(a) Commercial General Liability: $1,000,000 (one million dollars) combined single limit per occurrence comprehensive/extended/enhanced Commercial General Liability policy with coverage including bodily and personal injury, sickness, disease or death, injury to or destruction of property, including loss of use resulting therefrom, damage to premises/operations, products/completed operations, independent consultants and contractual liability (specifically covering the indemnity), broad-from property damage, and underground, explosion and collapse hazard. This coverage may be achieved by using an excess or umbrella policy. The policy or policies must be on “an occurrence” basis (“claims made” coverage is not acceptable). If a general aggregate limit applies, the general aggregate limit shall apply separately to this project/location, and the general aggregate limit shall be twice the required occurrence limit.

(b) Commercial Automobile Liability (owned, non-owned, hired): $1,000,000 (one million dollars) combined single limit per occurrence $2,000,000 (two million dollars) aggregate for comprehensive Commercial Automobile liability coverage (owned, non-owned, hired) including bodily and personal injury, sickness, disease or death, injury to or destruction of property, including loss of use resulting therefrom.

(c) Workers’ Compensation and Employers’ Liability: Workers’ Compensation policy with limits as required by the State of Georgia and Employers’ Liability limits of $1,000,000 (one million dollars) per occurrence or disease. (If Contractor is a sole proprietor, who is otherwise not entitled to coverage under Georgia’s Workers’ Compensation Act, Contractor must secure Workers’ Compensation coverage approved by both the State Board of Workers’ Compensation and the Commissioner of Insurance. The amount of such coverage shall be the same as what is otherwise required of employers entitled to coverage under the Georgia Workers’ Compensation Act. Further, the Contractor shall provide a
(3) Deductibles and Self-Insured Retentions: Any deductibles or self-insured retentions must be declared to and approved by the County in writing so that the County may ensure the financial solvency of the Contractor; self-insured retentions should be included on the certificate of insurance.

(4) Other Insurance Provisions: Each policy shall contain, or be endorsed to contain, the following provisions respectively:

(a) General Liability and Automobile Liability.

(i) Additional Insured Requirement. The County and County’s elected and appointed officials, officers, boards, commissioners, employees, representatives, consultants, servants, agents and volunteers (individually “Insured Party” and collectively “Insured Parties”) shall be named as additional insureds as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, leased, or used by the Contractor; automobiles owned, leased, hired, or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Insured Parties. Nothing contained in this section shall be construed to require the Contractor to provide liability insurance coverage to any Insured Party for claims asserted against such Insured Party for its sole negligence.

(ii) Primary Insurance Requirement. The Contractor’s insurance coverage shall be primary noncontributing insurance as respects to any other insurance or self-insurance available to the Insured Parties. Any insurance or self-insurance maintained by the Insured Parties shall be in excess of the Contractor’s insurance and shall not contribute with it.

(iii) Reporting Requirement. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Insured Parties.

(iv) Separate Coverage. Coverage shall state that the Contractor’s insurance shall apply separately to each insured against whom claim
is made or suit is brought, except with respect to limits of insurance provided.

(v)  *Defense Costs/Cross Liability.* Coverage shall be provided on a “pay on behalf” basis, with defense costs payable in addition to policy limits. There shall be no cross liability exclusion.

(vi)  *Subrogation.* The insurer shall agree to waive all rights of subrogation against the Insured Parties for losses arising from Work performed by the Contractor for the County.

(b)  **Workers’ Compensation Coverage:** The insurer providing Workers’ Compensation Coverage will agree to waive all rights of subrogation against the Insured Parties for losses arising from Work performed by the Contractor for the County.

(c)  **All Coverages:**

(i)  *Notice Requirement.* Each insurance policy required by this Agreement shall be endorsed to state that coverage shall not be reduced, suspended, voided, or canceled except after thirty (30) calendar days’ prior written notice (or 10 calendar days if due to non-payment) has been given to the County. In addition, Contractor shall provide written notice to County at least thirty (30) days prior to any reduction, suspension, voiding, or cancellation of coverage. The County reserves the right to accept alternate notice terms and provisions, provided they meet the minimum requirements under Georgia law.

(ii)  *Starting and Ending Dates.* Policies shall have concurrent starting and ending dates.

(iii)  *Incorporation of Indemnification Obligations.* Policies shall include a Project-specific endorsement incorporating the indemnification obligations assumed by the Contractor under the terms of this Agreement, including but not limited to Section 6(F) of this Agreement.

(5)  **Acceptability of Insurers:** The insurance to be maintained by Contractor must be issued by a company licensed or approved by the Insurance Commissioner to transact business in the State of Georgia. Such insurance shall be placed with insurer(s) with an A.M. Best Policyholder’s rating of no less than “A-” and with a financial rate of Class VII or greater. The Contractor shall be responsible for any delay resulting from the failure of its insurer to provide proof of coverage in the proscribed form.
(6) **Verification of Coverage:** Contractor shall furnish to the County for County approval certificates of insurance and endorsements to the policies evidencing all coverage required by this Agreement prior to the start of work. Without limiting the general scope of this requirement, Contractor is specifically required to provide an endorsement naming the County as an additional insured when required. The certificates of insurance and endorsements for each insurance policy are to be on a form utilized by Contractor’s insurer in its normal course of business and are to be signed by a person authorized by that insurer to bind coverage on its behalf, unless alternate sufficient evidence of their validity and incorporation into the policy is provided. The County reserves the right to require complete, certified copies of all required insurance policies at any time. The Contractor shall provide proof that any expiring coverage has been renewed or replaced prior to the expiration of the coverage.

(7) **Subcontractors:** Contractor shall either (1) ensure that its insurance policies (as described herein) cover all subcontractors and the Work performed by such subcontractors or (2) ensure that any subcontractor secures separate policies covering that subcontractor and its Work. All coverage for subcontractors shall be subject to all the requirements stated in this Agreement, including, but not limited to, naming the Insured Parties as additional insureds.

(8) **Claims-Made Policies:** Contractor shall extend any claims-made insurance policy for at least six (6) years after termination or final payment under the Agreement, whichever is later, and have an effective date which is on or prior to the Effective Date.

(9) **Progress Payments:** The making of progress payments to the Contractor shall not be construed as relieving the Contractor or its subcontractor or insurance carriers from providing the coverage required in this Agreement.

H. **Assignment of Agreement.** The Contractor covenants and agrees not to assign or transfer any interest in, nor delegate any duties of, this Agreement, without the prior express written consent of the County.

I. **Employment of Unauthorized Aliens Prohibited – E-Verify Affidavit.** Pursuant to O.C.G.A. § 13-10-91, the County shall not enter into a contract for the physical performance of services unless the Contractor shall provide evidence on County-provided forms, attached hereto as “Exhibits C and D”, that it and its subcontractors have registered with, are authorized to use and use 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, and that they will continue to use the federal work authorization program throughout the contract period.

The Contractor hereby verifies that it has, prior to executing this Agreement, executed a notarized affidavit, the form of which is provided in “Exhibit C”, and submitted such affidavit to
County. Further, Contractor hereby agrees to comply with the requirements of the federal Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603, O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-1-.02.

In the event the Contractor employs or contracts with any subcontractor(s) in connection with the covered contract, the Contractor agrees to secure from such subcontractor(s) attestation of the subcontractor’s compliance with O.C.G.A. § 13-10-91 and Rule 300-10-1-.02 by the subcontractor’s execution of the subcontractor affidavit, the form of which is attached hereto as “Exhibit D”, which subcontractor affidavit shall become part of the contractor/subcontractor agreement. If a subcontractor affidavit is obtained, Contractor agrees to provide a completed copy to the County within five (5) business days of receipt from any subcontractor. The Contractor and Contractor’s subcontractors shall retain all documents and records of their respective verification process for a period of five (5) years following completion of the contract.

Contractor agrees that the employee-number category designated below is applicable to the Contractor. [Information only required if a contractor affidavit is required pursuant to O.C.G.A. § 13-10-91.]

- [ ] 500 or more employees.
- [ ] 100 or more employees.
- [ ] Fewer than 100 employees.

Contractor hereby agrees that, in the event Contractor employs or contracts with any subcontractor(s) in connection with this Agreement and where the subcontractor is required to provide an affidavit pursuant to O.C.G.A. § 13-10-91, the Contractor will secure from the subcontractor(s) such subcontractor(s’) indication of the above employee-number category that is applicable to the subcontractor. The above requirements shall be in addition to the requirements of State and federal law and shall be construed to be in conformity with those laws.

J. **Confidentiality.** Contractor acknowledges that it may receive confidential information of the County and that it will protect the confidentiality of any such confidential information and will require any of its subcontractors, contractors, and/or staff to likewise protect such confidential information.

K. **Licenses, Certifications and Permits.** Contractor covenants and declares that it has obtained all diplomas, certificates, licenses, permits, or the like required of the Contractor by any and all national, state, regional, county or local boards, agencies, commissions, committees or other regulatory bodies in order to perform the Work. The Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work.

L. **Authority to Contract.** The individual executing this Agreement on behalf of Contractor covenants and declares that it has obtained all necessary approvals of its board of directors, stockholders, general partners, limited partners, or similar authorities to simultaneously execute and bind Contractor to the terms of this Agreement, if applicable.
M. **Ownership of Work.** All reports, designs, drawings, plans, specifications, schedules, work product, and other materials, including those in electronic form, prepared or in the process of being prepared for the Work to be performed by the Contractor ("Materials") shall be the property of the County, and the County shall be entitled to full access and copies of all Materials in the form prescribed by the County. Any and all copyrightable subject matter in all Materials is hereby assigned to the County, and the Contractor agrees to execute any additional documents that may be necessary to evidence such assignment.

N. **Nondiscrimination.** In accordance with Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, and all other provisions of Federal law, the Contractor agrees that, during performance of this Agreement, Contractor, for itself, its assignees and successors in interest, will not discriminate against any employee or applicant for employment, any subcontractor, or any supplier because of race, color, creed, national origin, gender, age or disability. In addition, Contractor agrees to comply with all applicable implementing regulations and shall include the provisions of this paragraph in every subcontract for services contemplated under this Agreement.

**Section 7. Final Project Documents; Warranty.**

Prior to final payment, Contractor shall deliver to County copies of any as-built drawings, operations, and maintenance manuals, and any other pertinent documents relating to the construction and operation of the Work that is not otherwise in the possession of the County. Contractor shall repair or replace all defects in materials, equipment, or workmanship appearing within one (1) year from the date of completion at no additional cost to the County.

**Section 8. Miscellaneous**

A. **Complete Agreement; Counterparts; Third Party Rights.** This Agreement, including all of the Contract Documents, constitutes the complete agreement between the Parties and supersedes any and all other agreements, either oral or in writing, between the Parties with respect to the subject matter of this Agreement. This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument. This Agreement shall be exclusively for the benefit of the Parties and shall not provide any third parties with any remedy, claim, liability, reimbursement, cause of action or other right.

B. **Governing Law; Business License; Proper Execution.** This Agreement shall be governed by and construed in accordance with the laws of the State of Georgia without regard to choice of law principles. Any action or suit related to this Agreement shall be brought in the Superior Court of Barrow County, Georgia, or the U.S. District Court for the Northern District of Georgia – Gainesville Division, and Contractor submits to the jurisdiction and venue of such court. During the Term of this Agreement, Contractor shall maintain a business license with the County, unless Contractor provides evidence that no such license is required. Contractor agrees that it will perform its services in accordance with the usual and customary standards of the Contractor’s profession or business and in compliance with all applicable federal, state, and local laws, regulations, codes,
ordinances, or orders applicable to the Project, including, but not limited to, O.C.G.A. § 50-5-63, any applicable records retention requirements, and Georgia’s Open Records Act (O.C.G.A. § 50-18-70, et seq.).

C. Notices. All notices, requests, demands, writings, or correspondence, as required by this Agreement, shall be in writing and shall be deemed received, and shall be effective, when (1) personally delivered, or (2) on the third calendar day after the postmark date when mailed by certified mail, postage prepaid, return receipt requested, or (3) upon actual delivery when sent via national overnight commercial carrier to the Party at the addresses first given above or at a substitute address previously furnished to the other Party by written notice in accordance herewith.

D. Waiver; Sovereign Immunity. No express or implied waiver shall affect any term or condition other than the one specified in such waiver, and that one only to the extent specifically stated. Nothing contained in this Agreement shall be construed to be a waiver of the County’s sovereign immunity or any individual’s qualified good faith or official immunities.

E. Agreement Construction and Interpretation; Invalidity of Provisions; Severability. Contractor represents that it has reviewed and become familiar with the Contract Documents, the nature and extent of the Work, work site(s), locality, and all local conditions, laws and regulations that in any manner may affect cost, progress, performance, or furnishing of the Work. Contractor represents that it has given the County written notice of all conflicts, errors, or discrepancies that the Contractor has discovered in the Contract Documents, and the written resolution thereof by the County is acceptable to the Contractor. The Parties hereto agree that, if an ambiguity or question of intent or interpretation arises, this Agreement is to be construed as if the Parties had drafted it jointly, as opposed to being construed against a Party because it was responsible for drafting one or more provisions of the Agreement. In the interest of brevity, the Contract Documents may omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement. Should any article(s) or section(s) of this Agreement, or any part thereof, later be deemed illegal, invalid or unenforceable by a court of competent jurisdiction, the offending portion of the Agreement should be severed, and the remainder of this Agreement shall remain in full force and effect to the extent possible as if this Agreement had been executed with the invalid portion hereof eliminated, it being the intention of the Parties that they would have executed the remaining portion of this Agreement without including any such part, parts, or portions that may for any reason be hereafter declared invalid.
IN WITNESS WHEREOF, the County and the Contractor have executed this Agreement effective as of the Effective Date first above written.

CONTRACTOR: ____________________

By: ________________________________________

Print Name: _________________________________

Its:         __________________________________

[CORPORATE SEAL]
(required if corporation)

Attest/Witness:

____________________________________________

Print Name: ___________________________________

Its:          ______________________________________

((Assistant) Corporate Secretary if corporation)

BARROW COUNTY, GEORGIA

By: ___________________________________

_______________, Chairman

[COUNTY SEAL]

Attest:

____________________________________________

Print Name: _________________________________

Its: County Clerk
“EXHIBIT B”

CONTRACTOR INSURANCE CERTIFICATES
“EXHIBIT C”

CONTRACTOR AFFIDAVIT AND AGREEMENT

STATE OF ________________
COUNTY OF ________________

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 Barrow County 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 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

Barrow County, Georgia

Name of Public Employer

I hereby declare under penalty of perjury 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

[NOTARY SEAL]

My Commission Expires:
“EXHIBIT D”

SUBCONTRACTOR AFFIDAVIT

STATE OF ___________________
COUNTY OF _______________

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 Barrow County 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 (5) business days of receipt. If the undersigned subcontractor receives notice that a sub-subcontractor has received an affidavit from any other contracted sub-subcontractor, the undersigned subcontractor must forward, within five (5) business days of receipt, a copy of the 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

Barrow County, Georgia

Name of Public Employer

_________________________________

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

Executed on ______ ____, 201__ 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
____________________, 201__.

NOTARY PUBLIC

[NOTARY SEAL]

My Commission Expires:

_________________________________
COUNTY OF BARROW

STATE OF GEORGIA

BARROW COUNTY ETHICS ORDINANCE

AN ORDINANCE TO AMEND THE CODE OF ORDINANCES OF BARROW COUNTY, TO ESTABLISH THE CODE OF ETHICS FOR BARROW COUNTY; TO FURTHER AND INCORPORATE THE POLICIES AND LAWS OF THE STATE OF GEORGIA RELATING TO ETHICAL STANDARDS; TO CREATE THE BOARD OF ETHICS AND PROVIDE FOR ITS CONSTITUENT MEMBERSHIP, DUTIES, AND RESPONSIBILITIES; TO PROVIDE FOR THE INVESTIGATION OF ETHICS COMPLAINTS; TO PROVIDE FOR THE ENFORCEMENT OF ETHICAL STANDARDS; TO PROVIDE FOR SEVERABILITY; TO PROVIDE FOR AN EFFECTIVE DATE; AND FOR OTHER PURPOSES.

WHEREAS, the Constitution of the State of Georgia, approved by the voters of the State in November of 1982, and effective July 1, 1983, provides in Article IX, Section II, Paragraph I thereof, that the governing authority of the county may adopt clearly reasonable ordinances, resolutions and regulations;

WHEREAS, O.C.G.A. § 36-1-20 authorizes counties to enact ordinances for protection and preserving the public health, safety and welfare of the population of the unincorporated areas of the County;

WHEREAS, the governing authority of Barrow County, to wit, the Board of Commissioners, desires to exercise its authority in adopting this Ordinance;

WHEREAS, it is essential to the proper operation of democratic government that public officials of independent and impartial, that governmental decisions and policy be made in the proper channels of the governmental structure, that public office not be used for private gain other than the remuneration provided by law, and that there be public confidence in the integrity of government;
WHEREAS, the attainment of one or more of these ends is impaired whenever there exists a conflict between the private interests of an elected official or a governmental employee and his duties as such;

WHEREAS, the public interest, therefore, requires that the law protect against such conflicts of interest and establish appropriate ethical standards with respect to the conduct of elected officials and government employees in situations where conflicts exist;

WHEREAS, it is also essential to the proper operation of government that those best qualified be encouraged to serve the government. Accordingly, legal safeguards against conflicts of interest must be so designed as not unnecessarily or unreasonably to impede the recruitment and retention by the government of those men and women who are best qualified to serve it;

WHEREAS, an essential principle underlying the staffing of our government structure is that its elected officials and employees should not be denied the opportunity, available to all other citizens, to acquire and retain private economic and other interests, except where conflicts with the responsibility of such elected officials and employees to the public cannot be avoided;

WHEREAS, in recognition of these goals and principles, it is the policy of the Board of Commissioners to institute, establish, promote and enforce standards of ethical conduct for all of Barrow County’s officers and employees; and

WHEREAS, it is a further policy of the Board of Commissioners that the proper administration of Barrow County’s government and the promotion and enforcement of standards of ethical conduct for Barrow County’s officers and employees would be best served by the creation of a Barrow County Board of Ethics for the investigation of complaints related to ethical standards;
NOW, THEREFORE, BE IT ORDAINED AND RESOLVED BY THE BOARD OF

COMMISSIONERS OF BARROW COUNTY, GEORGIA AS FOLLOWS:

ARTICLE ONE: GENERAL PROVISIONS

Section One. Short Title.

This Ordinance shall be known as "The Barrow County Ethics Ordinance," and may be Cited and referred to as such.

Section Two. Definitions.

For the purposes of this Ordinance, the following terms, phrases, words and their derivations shall have the meaning provided herein. When no inconsistent with the context, words used in the present tense include the future, words in the plural number included the singular number and words in the singular number include the plural number.

(A) "Board" means the Barrow County Board of Commissioners.

(B) "Board of Ethics" means the Barrow County Board of Ethics as formed and described herein.

(C) "Business Entity" means any business of whatever nature regardless of how designated or formed, whether a sole proprietorship, partnership, joint venture, association, trust, corporation, limited liability company, or any other type of business enterprise and whether a person acting on behalf of, or as a representative or agent of, the business entity.

(D) "Confidential Information" means any information that, by law or practice, is not reasonably available to the public.

(E) "County Official" means the Barrow County Board of Commissioners, any member of a board, commission or authority appointed by the Board, the Chief of
Operations or his/her equivalent and any other elected or appointed officer or employee of Barrow County, including those employees who are exempt from the Barrow County Civil Service System, except to the extent prohibited by law.

(F) "Employee" means all those persons employed on a regular or part-time basis by The County, as well as those persons whose services are retained under the terms of a contract with the County, including those employees who are exempt from the Barrow County Civil Service System, except to the extent prohibited by law.

(G) "Family" means the spouse, parents, children, brothers and sisters, related by blood or marriage of a county official or employee.

(H) "Interest" means direct or indirect pecuniary or material benefit accruing to a County Official or Employee as a result of a contract or transaction which is or may be the subject of an official act or action by or with the County, except for such contracts or transactions which, by their terms and by the substance of their provisions, confer the opportunity and right to realize the accrual of similar benefits to all other persons and/or property similarly situated. The term "interest" shall not include any remote interest. For purposes of this Ordinance, a County Official or Employee shall be deemed to have an interest in the affairs of:

(1) His or her family;

(2) Any business entity in which the county official or employee is a member, officer, director, employee or prospective employee;

(3) Any business entity as to which the stock, legal ownership, or beneficial ownership of a county official or employee is in excess of five percent (5%) of the total stock or total legal and beneficial ownership, or which is
controlled or owned directly or indirectly by the county official or employee.

(1) "Official Act" or "Official Duties" means any legislative, administrative, appointive or discretionary act of any County Official or Employee of the County or any agency, board, authority or commission thereof.

ARTICLE TWO: CODE OF ETHICS FOR COUNTY SERVICE GENERALLY AND FOR EMPLOYEES

This Article Two is intended to adopt and incorporate herein for local enforcement the ethical standards of O.C.G.A. § 45-10-1, as it may be amended from time to time.

Any person in County service shall;

Section One.

Put loyalty to the highest moral principles and to country above loyalty to person, party, or government department.

Section Two.

Uphold the Constitution, laws and legal regulations of the United States and the State of Georgia and of all governments therein and never be a party to their evasion.

Section Three.

Give a full day's labor for a full day's pay and give to the performance of his duties his earnest effort and best thought.

Section Four.

Seek to find and employ more efficient and economical ways of getting tasks accomplished.
Section Five

Never discriminate unfairly by the dispensing of special favors or privileges to anyone, whether for remuneration or not, and never accept, for himself or his family, favors or benefits under circumstances which might be construed by reasonable persons as influencing the performance of his governmental duties.

Section Six

Make no private promises of any kind binding upon the duties of office, since a government employee has no private word that can be binding on public duty.

Section Seven.

Engage in no business with the government, either directly or indirectly, which is inconsistent with the conscientious performance of his governmental duties.

Section Eight.

Never use any information coming to him confidentially in the performance of governmental duties as a means for making private profit.

Section Nine.

Expose corruption wherever discovered.

Section Ten.

Uphold these principles, ever conscious that public office is a public trust.

ARTICLE THREE: CODE OF ETHICS FOR COUNTY OFFICIALS AND DEPARTMENT DIRECTORS

This Article Three is intended to adopt and incorporate herein for local enforcement the ethical standards of O.C.G.A.§ 45-10-3, as it may be amended from time to time.

All County Officials and Department Directors shall:
Section One.

Uphold the Constitution, laws and regulations of the United States, the State of Georgia, the County of Barrow and all governments therein and never be a party to their evasion.

Section Two.

Never discriminate by the dispensing of special favors or privileges to anyone, whether or not for remuneration.

Section Three.

Not engage in any business with the government, either directly or indirectly, which is inconsistent with the conscientious performance of his governmental duties.

Section Four.

Never use any information coming to him confidentially in the performance of governmental duties as a means for making private profit.

Section Five.

Expose corruption wherever discovered.

Section Six.

Never solicit, accept, or agree to accept gifts, loans, gratuities, discounts, favors, hospitality or services from any person, association or corporation under circumstances from which it could reasonably be inferred that a major purpose of the donor is to influence the performance of the member's official duties.

Section Seven.

Never accept any economic opportunity under circumstances where he knows or should know that there is a substantial possibility that the opportunity is being afforded him with intent to influence his conduct in the performance of his official duties.
Section Eight.

Never engage in other conduct which is unbecoming to a member or which constitutes a breach of public trust.

Section Nine.

Never take any official action with regard to any matter under circumstances in which he knows or should know that he has a direct or indirect monetary interest in the subject matter of such matter or in the outcome of such official action.

ARTICLE FOUR: SPECIFIC PROVISIONS RELATED TO CONFLICT OF INTEREST TRANSACTIONS AND DISCLOSURES

The following provisions related to conflict of interest transactions and disclosures are intended to supplement and elaborate upon the Code of Ethics set forth in Articles Two and Three above and all such provisions shall be read and interpreted in accordance therewith.

Section One. Compliance with Applicable Law.

No County Official or Employee shall engage in any activity or transaction that is prohibited by law, now existing or hereafter enacted, which is applicable to him or her by virtue of his or her office or employment. Other provisions of law or regulations shall apply when any provisions of this Ordinance shall conflict with the laws of the State of Georgia or the United States, except to the extent that this Ordinance permissibly sets forth a more stringent standard of conduct. The laws of the State of Georgia or the United States shall apply when this Ordinance is silent.

Section Two. Conflict of Interest Transactions.

(A) No County Official or Employee shall acquire or maintain an interest in any contract or transaction if a reasonable basis exists that such an interest will be affected directly by his or her official act or action or by official acts or actions of
the County, which the County Official or Employee has a reasonable opportunity
to influence, except consistent with the disclosure and abstention provisions set
forth herein.

(B) Barrow County shall not enter into any contract involving services or property
with a County Official or Employee or with a business entity in which the County
Official or an Employee has an interest. Provided that the disclosure and
abstention provisions set forth herein are followed, this paragraph shall not apply
to the following:

(1) The designation of a bank or trust company as a depository for county
funds;

(2) The borrowing of funds from any bank or lending institution which offers
competitive rates for such loans;

(3) Contracts entered into with a business which employs a consultant,
provided that the consultant's employment with the business is not
incompatible with this Ordinance;

(4) Contracts for services entered into with a business which is the only
available source for such goods or services; and

(5) Contracts entered into under circumstances that constitute and emergency
situation, provided that a record explaining the emergency is prepared by
the Board and submitted to the Chief of Operations (or his/her equivalent)
to be kept on file.
Section Three.  Financial Disclosures.

Financial disclosures shall be governed by federal and state law as it may be amended from time to time and this Ordinance shall not require any additional financial disclosure reports to be filed other than those required by federal and state law.

Section Four.  Zoning Application Disclosures.

All disclosures with regard to zoning applications shall be governed in their entirety by the Conflict of Interest in Zoning Actions provisions contained in O.C.G.A. § 36-67A-1, et seq., as it may be amended from time to time.

Section Five.  Disclosures Related to Submission of Bids or Proposals for County Work or Contract.

Persons submitting bids or proposals for county work who have contributed $250.00 or more to a County Official must disclose on their bid or proposal the name of the County Official(s) to whom the contribution was made and the amount contributed. Such a disclosure must also be made prior to a request for any change order or extension of any contract awarded to the person who submitted the successful bid or proposal.

Section Six.  Withholding of Information.

No County Official or Employee shall knowingly withhold any information that would impair the proper decision making of the Board or any of the County's boards, agencies, authorities or departments.

Section Seven.  Incompatible Service.

No County Official or Employee shall engage in or accept private or public employment or render service for any private or public entity, when such employment or service is incompatible with the proper discharge of his or her official duties or would tend to impair his or her independence of judgment or action in the performance of his or her official duties, unless
otherwise permitted by law and unless public disclosure is made.

Section Eight. Unauthorized Use of Public Property.

No County Official or Employee shall request or permit the unauthorized use of county-owned vehicles and equipment, including but not limited to computers, pagers and cellular telephones, materials or property for personal convenience or profit.

Section Nine. Political Recrimination and Activity.

(A) No County Official or Employee, whether elected or appointed, shall either cause the dismissal or threaten the dismissal from any county position as a reward or punishment for any political activity. No County Official or Employee shall direct any person employed by the County to undertake political activity on behalf of such County Official or Employee, any other County Official or Employee, or any other individual, political party, group or business organization, during such time that the Employee is required to conduct county business. This section does not prohibit incidental telephone calls made for the purpose of scheduling a County Official's daily county business.

(B) Employees of the county are encouraged to exercise their right to vote, but no employee shall make use of government time or equipment to aid a political candidate, party or cause; or use a government position to influence, coerce, or intimidate any person in the interest of a political candidate, party or cause. No employee shall be hired, promoted, favored or discriminated against with respect to employments because of his or her political opinions or affiliations.

(1) Seeking elective office. A government employee seeking elective office within the county may, upon declaring candidacy, either resign or submit a
request in writing to the Chief of Operations (or his/her equivalent) for a leave of absence without pay from the date of his or her announcement through the duration of the campaign or announcement of the election results. In the alternative, the government employee seeking elective office within the County may continue to work for the County, provided, however, that the employee shall not engage in election activities during his or her County working hours or with use of County equipment. If elected to office, the employee shall immediately, upon the date of election, be separated from employment with the county upon written request and approval of the Chief of Operations (or his/her equivalent).

(2) _Political campaign involvement._ A government employee may not be involved in any political activity which would constitute a conflict of interest; including participation in any aspect of any political campaign for any office in Barrow County Government.

(3) _Solicitation of contributions._ A government employee may not knowingly solicit, accept or receive political contributions from any person, to be used in support of or opposition to any candidate for office in the county.

**Section Ten. Appearance Before County Entities.**

No County Official or Employee shall appear on behalf of any private person other than himself or herself, his or her spouse, or his or her minor children, before any county agency, authority or board. However, a member of the Board of Commissioners may appear before such groups on behalf of his constituents in the course of his duties as a representative of the electorate or in the performance of public or civic obligations.
Section Eleven. Timely Payment of Debts to the County and Fiscal Responsibility.

All County Officials and Employees shall pay and settle, in a timely and prompt fashion, all accounts between them and Barrow County, including the prompt payment of all taxes and shall otherwise demonstrate personal fiscal responsibility.

Section Twelve. Solicitation or Acceptance of Gifts.

(A) County Officials and employees shall not accept gifts, gratuities or loans from organizations, business concerns, or individuals with whom he or she has official relationships on business of the county government. These limitations are not intended to prohibit the acceptance of articles of negligible value which are distributed generally, nor to prohibit employees from accepting social courtesies which promote good public relations, or to prohibit employees from obtaining loans from regular lending institutions. It is particularly important that inspectors, contracting officers and enforcement officers guard against relationships which might be construed as evidence of favoritism, coercion, unfair advantage or collusion.

(B) Consistent with the provisions set forth in Articles Two and Three and Section 12(A) above, there shall be no violation of this Ordinance in the following circumstances:

(1) Meals and beverages given in the usual course of entertaining associated with normal and customary business or social functions.

(2) An occasional gift from a single source of $101.00 or less in any calendar year.

(3) Ceremonial gifts or awards.
(4) Gifts of advertising value only or promotional items generally distributed to public officials.

(5) Awards presented in recognition of public service.

(6) Reasonable expenses of food, travel, lodging and scheduled entertainment for a meeting that is given in return for participation in a panel or speaking engagement at the meeting.

(7) Courtesy tickets or free admission extended for an event as a courtesy or for ceremonial purposes, given on an occasional basis and not to include season tickets of any nature.

(8) Gifts from relatives or members of the County Official or Employee's household.

(9) Honorariums or awards for professional achievement.

(10) Courtesy tickets or free admission to educational seminars, educational or information conventions or other similar events.

Section Thirteen. Disclosure of Interest.

Any member of the Board who has a financial or personal interest in any proposed legislation or action before the Board shall immediately disclose publicly the nature and extent of such interest.

Any other County Official or Employee who has a financial or personal interest in any proposed legislation or action before the Board and who participates in discussion with or gives an official opinion or recommendation to the Board in connection with such proposed legislation or action shall disclose publicly the nature and extent of such interest.
Section Fourteen. Abstention to Avoid Conflicts of Interest.

(A) Except as otherwise provided by law, no County Official or Employee shall participate in the discussion, debate, deliberation, vote or otherwise take part in the decision-making process on any item before him in which the County Official or Employee has a conflict of interest as set forth above.

(B) To avoid the appearance of impropriety, if any County Official or Employee has a conflict of interest or has an interest that he or she has reason to believe either violates this Ordinance or may affect his or her official acts or actions in any matter, the County Official or Employee shall immediately leave the meeting room, except that if the matter is being considered at a public meeting, the County Official or Employee may remain in the meeting room.

(C) In the event of a conflict of interest, the County Official or Employee shall announce his or her intent to abstain prior to the beginning of the discussion, debate, deliberation or vote on the item, shall not participate in any way, and shall abstain from casting a vote.

ARTICLE FIVE: THE BOARD OF ETHICS

Section One. Creation and Composition of Board of Ethics.

There is hereby created a five-member Barrow County Board of Ethics, which shall consist of the following members:

(A) One appointee by the Board of Directors of the Barrow County Chamber of Commerce.

(B) One appointee selected by a majority of the voting County elected officials (not including the members of the Board of Commissioners) who shall each have one vote for such appointee:
(C) One appointee selected by a majority of the voting employees of Barrow County (not including the County elected officials or the members of the Board of Commissioners) who are in the employ of Barrow County on a full-time basis on the effective date of the vote, which vote shall be conducted by the Director of Human Resources or his/her designee;

(D) One appointee of the Barrow County Personnel Review Board; and

(E) One appointee of the Barrow County Board of Commissioners, which appointee shall be selected by a majority vote of the Board of Commissioners.

Section Two. Appointment Procedures.

The initial appointments of the members of the Board of Ethics shall be accomplished as follows: Within five (5) business days of the effective date of this Ordinance, the Barrow County Chief of Operations (or his/her equivalent) or his/her designee shall notify the respective appointing body or individuals of the duty to appoint or vote upon a member for placement on the Board of Ethics. The body or individuals so notified shall have thirty (30) days in which to conduct their appointment process and provide the Chief of Operations (or his/her equivalent) with the name of the appointment, or the name of the individual for whom he or she is voting as the appointee in the case of the elected officials. Within five (5) business days of receipt of the appointment information or calculation of the votes as the case may be, the Chief of Operations (or his/her equivalent) shall thereafter provide the names of the appointees to the Board of Commissioners. The Board of Commissioners shall appoint the five persons so identified at the next regular meeting of the Board of Commissioners following receipt of the names of the appointees from the Chief of Operations (or his/her equivalent).

All appointments following the expiration of the initial terms and all appointments made
In the cases of vacancies created during a particular term shall be made by the applicable body or individuals as indicated in Section One of this Article. The Chief of Operations (or his/her equivalent) or his/her designee shall notify the applicable body or individuals responsible for making an appointment at least forty-five (45) days prior to the expiration of the respective term or immediately upon knowledge of a vacancy created during a term. Upon such notification, the appointment process shall proceed as set forth above in this Section.

Section Three. Qualifications of Members of Board of Ethics.

A person is eligible to be appointed as a member of the Board of Ethics if the person, while serving:

(A) Resides in the County and is a registered voter;

(B) Is not an Employee or County Official and has not been an Employee or County Official during the three (3) months immediately preceding his or her appointment or be the spouse, parent, child or sibling of an Employee or County Official;

(C) Is not an officer or employee of any political party;

(D) Does not hold any elected or appointed office and is not a candidate for office of the United States, this State or the County and has not held any elected or appointed office during the three (3) months immediately preceding his or her appointment.

Section Four. Terms; Vacancies.

Members of the Board of Ethics shall each serve a two (2) year term without compensation, and shall continue to serve until their successors are appointed and qualified. The Board positions appointed pursuant to sub-sections (A), (B), and (C) of Section One of this
Article shall serve an initial full two-year term and shall thereafter serve two-year terms upon appointment. The Board positions appointed pursuant to sub-sections (D) and (E) of Section One of this Article shall serve an initial one-year term and shall thereafter serve two-year terms upon appointment. If any vacancy occurs during a term, the remaining members shall at that time choose an alternate member mutually agreed upon to temporarily serve until the position is filled by appointment as provided in Section One and Section Two to fulfill the remainder of the then existing term.

**Section Five. Removal of Member.**

The Board of Commissioners may remove a member of the Board of Ethics on the grounds of neglect of duty, misconduct in office or engagement in political activity in violation of this Ordinance. Before initiating the removal of a member from the Board of Ethics, the Board of Commissioners shall give the member written notice of the reason for the intended action and the member shall have the opportunity to reply. Thereafter, the Board of Commissioners shall afford such member an opportunity for a hearing before the Board of Commissioners.

**Section Six. Organization and Internal Operating Regulations.**

(A) Members of the Board of Ethics shall not be compensated.

(B) The Board of Ethics shall elect one of its members to act as Chairperson for a term of one year or until a successor is duly elected. The Board of Ethics shall also elect one of its members to act as Vice-Chairperson for the same term and to act for the Chairperson in his or her absence, because of disqualification or vacancy.

(C) There shall be no regularly scheduled monthly or bimonthly meetings of the
Board of Ethics, however, the Board of Ethics shall meet at least once annually in January of each year for purposes of election of officers and such other business as the Board of Ethics deems proper and in accordance with this Ordinance. Meetings shall be called by majority vote or by call of the chairperson. Meetings of the Board of Ethics shall be conducted in the public hearing room utilized by the Board of Commissioners, shall be duly publicized, and shall be otherwise conducted in accordance with the open meetings requirements under state law.

(D) Three members of the Board of Ethics shall constitute a quorum for the transaction of business. The Chairperson shall be entitled to the same voting rights as the other members of the Board of Ethics.

(E) No official action concerning complaints shall be taken by the Board of Ethics, except by the affirmative vote of at least four (4) members of the Board of Ethics.

Section Seven. Duties and Powers.

The Board of Ethics shall have the following duties and powers:

(A) To establish any procedures, rules and regulations governing its internal organization and conduct of its affairs, provided that such procedures, rules and regulations do not conflict with any provision contained herein.

(B) To receive and hear complaints of violations of standards required by this Ordinance.

(C) To make investigations as it deems necessary to determine whether any person has violated this Ordinance, but only after a least four (4) members of the Board of Ethics have voted affirmatively to conduct the investigation.

(D) To take such action as provided in this Ordinance as deemed appropriate because of any violation of this Ordinance.
(E) To perform any other function authorized by this Ordinance.

(F) To issue advisory opinions as provided in this Ordinance.

Section Eight. Staffing and Expenses.

The Board of Ethics shall be provided sufficient meeting space and other reasonable supportive services to carry out its duties required under this Ordinance. The Chief of Operations (or his/her equivalent) shall designate an administration employee who shall serve as the filing clerk for the Board of Ethics and who shall be authorized to receive all filings before the Board of Ethics to publish notices of all meetings upon request of the Board of Ethics' Chairperson and to serve as the recording clerk for the Board of Ethics.

Section Nine. Counsel.

The Board of Ethics may petition the Barrow County Board of Commissioners for appointment of counsel on a case-by-case basis to assist it in carrying out its responsibilities or to act as a hearing officer. Any such appointed counsel shall be approved by the Board of Commissioners, shall perform services at an approved hourly rate, and shall serve at the joint pleasure of the Board of Ethics and the Board of Commissioners.

Section Ten. Adherence to the Ethics Ordinance.

The Board of Ethics shall be governed by and subject to this Ordinance, except as to any requirements related to financial disclosures. If a member of the Board of Ethics has a conflict of interest or must disqualify himself under this Ethics Code or by law, the remaining members shall at that time choose an alternate person mutually agreed upon to hear that matter.
Section Eleven.  Prohibition Against Certain Conflicting Political Activity.

(A) Definitions. The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them, except where the context clearly indicates a different meaning:

(1) "Member of the Board of Ethics" means an individual who occupies the position of a member of the Board of Ethics or a prospective member of the Board of Ethics.

(2) "Political Party" means a national political party, a state political party, a political action committee, and/or any affiliated organization.

(3) "Election" includes a primary, special and general election.

(4) "Nonpartisan Election" means:

(a) An election at which none of the candidates is to be nominated or elected as representing a political party, any of whose candidates for presidential elector received votes in the last preceding election at which presidential electors were selected; and

(b) An election involving a question or issue which is not specifically identified with a political party, such as a constitutional amendment, referendum, approval of a governmental ordinance, or any question or issue of similar character

(5) "Partisan" when used as an adjective, refers to a political party.

(6) "Political Fund" means any fund, organization, political action committee or other entity that, for purposes of influencing in any way the outcome of any partisan election, receives or expends money or
anything of value or transfers money or anything of value to any other fund, political party, candidate, organization, political action committee or other entity.

(7) "Contribution" means any gift, subscription, loan, advance, deposit of money, allotment of money, or anything of value given or transferred by one person to another, including in cash, by check, by draft, through a payroll deduction or allotment plan, by pledge or promise, whether or not enforceable, or otherwise.

(B) Permissible Activities. All members of the Board of Ethics are free to engage in political activity to the widest extent consistent with the restrictions imposed in this Section, which restrictions are imposed for the sole purpose of ensuring neutrality and the appearance of neutrality of the Board of Ethics. Each member of the Board of Ethics retains the right to:

(1) Register and vote in any election;

(2) Participate in the nonpartisan activities of a civic, community, social, labor, or professional organization or of a similar organization;

(3) Be a member of a political party or other political organization and participate in its activities to the extent consistent with law;

(4) Attend a political convention, rally, fundraising function, or other political gathering;

(5) Sign a political petition as an individual;

(6) Make a financial contribution to a political party or organization;

(7) Take an active part, as a candidate or in support of a candidate, in a
nonpartisan election;

(8) Be politically active in connection with a question which is not specifically identified with a political party, such as a constitutional amendment, referendum, approval of a governmental ordinance or any other question or issue of a similar character;

(9) Serve as an election judge or clerk or in a similar position to perform nonpartisan duties as prescribed by state or local law; and

(10) Otherwise participate fully in public affairs in a manner which does not materially compromise his or her efficiency or integrity as a member of the Board of Ethics or the neutrality, efficiency or integrity of the Board of Ethics.

(C) Prohibited Activities.

(1) A member of the Board of Ethics may not take an active part in political management or in a political campaign, except as permitted by subsection of this section.

(2) A member of the Board of Ethics shall not take part in or be permitted to do any of the following activities:

(a) Serve as an officer of a political party, a member of a national, state or local committee of a political party, an officer or member of a committee of a partisan political club, or be a candidate for any of these positions;

(b) Organize or reorganize a political party organization or political club;

(c) Directly or indirectly solicit, receive, collect, handle, disburse, or
account for assessments, contributions or other funds for a partisan political purpose;

(d) Organize, sell tickets to, promote or actively participate in a fundraising activity of a candidate in a partisan election or of a political party or political club;

(e) Take an active part in managing the political campaign of a Candidate for public office in a partisan election or a candidate for political party office;

(f) Become a candidate for, or campaign for, an elective public office In a partisan election;

(g) Solicit votes in support of or in opposition to a candidate for Public office in a partisan election;

(h) Act as recorder, watcher, challenger or similar officer at the polls on behalf of a political party or a candidate in a partisan election;

(i) Drive voters to the polls on behalf of a political party or a candidate in a partisan election;

(j) Endorse or oppose a candidate for public office in a partisan election or a candidate for political party office in a political advertisement, broadcast, campaign literature, or similar material;

(k) Serve as a delegate, alternate or proxy to a political party convention;

(l) Address a convention, caucus, rally or similar gathering of a political party in support of or in opposition to a partisan
candidate for public office or political party office;

(m) Initiate or circulate a partisan nominating position.

(3) Nothing contained in this section shall prohibit activity in political management or in a political campaign by any member of the Board of ethics connected with a nonpartisan election or a nonpartisan issue of any type.

Section Twelve. Limitation of Liability.

No member of the Board of Ethics, or any person acting on behalf of the Board of Ethics, shall be liable to any person for any damages arising out of the enforcement or operation of this Ethics Ordinance, except in the case of willful or wanton conduct. This limitation of liability shall apply to the County, the members of the Board of Ethics, the employees of the Board of Ethics and any person acting under the direction of the Board of Ethics.

Section Thirteen. Advisory Opinion.

The Board of Ethics shall render an advisory opinion based on a real or hypothetical set of circumstances when requested to do so in writing by a County Official or Employee related to that County Official's or Employee's conduct or transaction of business. Such advisory opinions shall be rendered pursuant only to a written request, fully setting forth the circumstances to be reviewed by the Ethics Board. The proceedings of the Ethics Board pursuant to this section shall be held in public to the extent consistent with state law and the opinions of the Ethics Board shall be made available to the public.

Section Fourteen. Complaints.

The Board of Ethics shall be responsible for hearing and deciding any complaints filed regarding alleged violations of this Ordinance by any person. The following procedures shall be followed when filing a complaint:
(A) Any person may file a complaint alleging a violation of any of the provisions of This Ordinance by submitting it to the Chief of Operations (or his/her equivalent), who shall immediately deliver such complaint to the Chairman of the Board of Ethics or his or her designee. A copy of such complaint shall immediately be forwarded by registered mail to the County Official or Employee against whom the complaint was filed. The complaint must be supported by affidavits based on personal knowledge, shall set forth such facts as would be admissible in evidence, and shall show affirmatively that the affiant is competent to testify to the matters stated therein. All documents referred to in an affidavit(s) should be attached to the affidavit(s). The person filing the complaint shall verify the complaint by his or her signature thereon. A complaint must be filed within six (6) months of the date the alleged violation is said to have occurred, or in case of concealment or nondisclosure within six (6) months of the date the alleged violation should have been discovered after due diligence. In the event the Board of Ethics makes an initial determination that a complaint is technically deficient, the Board of Ethics shall submit a list of deficiencies to the complainant and offer the complainant the opportunity to correct the deficiencies within seven (7) days prior to the complaint being dismissed for technical deficiencies.

(B) Upon receipt of a complaint alleging misconduct, the County Official or Employee against whom the complaint was filed may reply to the complaint within thirty (30) days, unless such time for reply is extended by the Board of Ethics upon good cause shown. The response of the County Official or Employee must be supported by affidavits based on personal knowledge, must set forth such facts as would be admissible in evidence and must show
affirmatively that the affiant is competent to testify to the matters stated therein.

All documents referred to in an affidavit(s) should be attached to the affidavit(s).

(C) Within sixty (60) days of receipt of a complaint, the Board of Ethics shall conduct an investigatory review to determine whether specific substantiated evidence from a credible source(s) exists to support a reasonable belief that there has been a violation of this Ordinance. If after reviewing the complaint the Board of Ethics by vote determines that no specific, substantiated evidence from a credible source(s) exists to support a reasonable belief that there has been a violation of this Ordinance or determines that no violation occurred, it may dismiss the complaint without further proceedings. In the event a complaint is dismissed based upon the merits of the complaint, the complaint may not be re-filed.

(D) If the Board of Ethics determines that specific, substantiated evidence from a credible sources(s) exists to support a reasonable belief that there has been a violation of this Ordinance, certified written notice of a hearing, containing the time, date and place of such hearing, shall be given to each party by the Board of Ethics and a formal public hearing shall be conducted and both parties afforded an opportunity to be heard. Any formal public hearing shall be conducted in accordance with the requirements of due process. The Board of Ethics is authorized to swear witnesses.

(E) Any final determination resulting from the hearing shall include written findings of fact and conclusions of law. The Board of Ethics shall determine if clear and convincing evidence shows any violation of this Ordinance.

(F) Nothing in this section shall be considered to limit or encumber the right of the Board of Ethics to initiate an investigation on its own cognizance as it deems
Necessary to fulfill its obligations under this Ordinance.

Section Fifteen. Disciplinary Action.

(A) Upon a determination that an employee has violated this Ordinance, the Board of Ethics may recommend the following penalties and actions:

1. Written warning or reprimand;
2. Suspension without pay;
3. Termination of employment; and
4. Repayment to the County of any unjust enrichment.

(B) Upon a determination that a County Official has violated this Ordinance, the Board of Ethics may recommend the following penalties and actions:

1. Written warning, censure or reprimand;
2. Removal from office to the extent provided by Georgia law; and
3. Repayment to the County of any unjust enrichment.

(C) Upon direction of the Board of Ethics, a petition may be filed for injunctive relief, or any other appropriate relief, in the county superior court or in any other court having proper venue and jurisdiction, for the purpose of requiring compliance with the provisions of this Ordinance. In addition, the court may issue an order to cease and desist from the violation of the Ordinance. The court also may void an official action that is the subject of the violation, provided that the legal action to void the matter was brought with ninety (90) days of the occurrence of the official action, if the court deems voiding the action to be in the best interest of the public. The Court, after hearing and considering all the circumstances in the case, may grant all or part of the relief sought. However, the court may not void any official action appropriating public funds, levying taxes or providing for the
issuance of bonds, notes or other evidence of public obligation under this Ordinance.

(D) In addition to any other remedy provided herein, upon determination of a Violation of this Ordinance, the Board of Ethics may recommend to the Board of Commissioners in writing that any contract, bid or change order that was the Subject of the violation should be cancelled or rescinded. The Board of Commissioners, however, shall retain the discretion to determine whether such a Cancellation or rescission would be in the best interest of the County and shall not be bound in any way by a recommendation of the Board of Ethics.

(E) The Ethics Board may also forward its findings of fact and conclusions of law to the Barrow County District Attorney's Office and/or the Office of the Governor for appropriate action.

Section Sixteen. Judicial review.

(A) Any party against whom a decision of the Board of Ethics is rendered may obtain judicial review of the decision by writ of certiorari to the superior court of the County. The application for the writ must be filed within thirty (30) days from the date of the written decision. Judicial review shall be based upon the record. No party shall be entitled to a de novo appeal.

(B) Upon failure to timely request judicial review of the decision by writ of certiorari as provided in this section, the decision shall be binding and final upon all parties.

(C) The appellate rights afforded hereunder shall be in lieu of any right to appeal an adverse employment action under the Barrow County Civil Service
System, to the extent the County Official or employee may be subject to the Civil Service System.

ARTICLE SIX: MISCELLANEOUS

Section One. Severeability.

If any provision of this Ordinance is found by a court of competent jurisdiction to be invalid or unconstitutional, or if the application of this Ordinance to any person or circumstances is found to be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect other provisions or applications of this Ordinance which can be given effect without the invalid or unconstitutional provision or application.

Section Two. Repealer

All laws, resolution, or ordinances or parts thereof that conflict with the provisions of this Ordinance are repealed.

Section Three. Effective Date.

The effective date of this Ordinance shall be July 1, 2004.

AMENDED:

Article Five, Section 1, Subparagraph (A) January 25, 2005
Article Five, Section 6, Subparagraph (C) January 8, 2008