

Project Manual

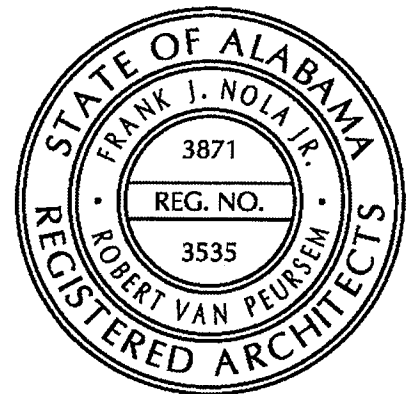
THE UNIVERSITY OF ALABAMA IN HUNTSVILLE SWIRLL ROOF HATCH



Architect's Project Number 18000A

Alabama Building Commission Number 2018476

September 21, 2018



SECTION 00 01 01

TITLE PAGE

PROJECT MANUAL FOR:

PROJECT: The University of Alabama in Huntsville
SWIRLL Roof Hatch

RELEASE DATE: September 21, 2018

ARCHITECT'S PROJECT NUMBER: 18000A

B. C. NUMBER: 2018476

OWNER'S REPRESENTATIVE: Larrell Hughes
The University of Alabama in Huntsville
Huntsville, Alabama 35899
(256) 824-6480 Phone

ARCHITECT: Nola | VanPeurseem Architects, PC
301 Jefferson Street
Huntsville, AL 35801
(256) 533-6617 Phone

STRUCTURAL ENGINEER: PEC Structural Engineering, Inc.
3005 L and N Drive / Suite #3
Huntsville, AL 35801
(256) 533-3042 Phone

MECHANICAL ENGINEER: Mims Engineering, Inc.
112 Southside Square, Suite B
Huntsville, AL 35801
(256) 881-4126 Phone

ELECTRICAL ENGINEER: EE Group, Inc.
71 Thunderbird Lane
Gadsden, AL 35904
(256) 413-7717 Phone

END OF SECTION

SECTION 00 01 01

TITLE PAGE

PROJECT MANUAL FOR:

PROJECT: The University of Alabama in Huntsville
SWIRLL Roof Hatch

RELEASE DATE: September 21, 2018

ARCHITECT'S PROJECT NUMBER: 18000A

B. C. NUMBER: Unassigned

OWNER'S REPRESENTATIVE: Larrell Hughes
The University of Alabama in Huntsville
Huntsville, Alabama 35899
(256) 824-6480 Phone

ARCHITECT: Nola | VanPeursem Architects, PC
301 Jefferson Street
Huntsville, AL 35801
(256) 533-6617 Phone

STRUCTURAL ENGINEER: PEC Structural Engineering, Inc.
3005 L and N Drive / Suite #3
Huntsville, AL 35801
(256) 533-3042 Phone

MECHANICAL ENGINEER: Mims Engineering, Inc.
112 Southside Square, Suite B
Huntsville, AL 35801
(256) 881-4126 Phone

ELECTRICAL ENGINEER: EE Group, Inc.
71 Thunderbird Lane
Gadsden, AL 35904
(256) 413-7717 Phone

END OF SECTION

TABLE OF CONTENTS

TITLE PAGE TABLE OF CONTENTS

DIVISION 00 - INTRODUCTORY INFORMATION

00 01 15	List of Drawings	1
00 10 00	Bid Documents and Forms	20
00 22 00	Supplementary Instructions to Bidders	1
00 43 21	Supplement A – List of Subcontractors	1
00 50 00	Construction Documents and Forms	86

DIVISION 01 - GENERAL REQUIREMENTS

01 10 00	Summary	2
01 20 00	Price and Payment Procedures	3
01 30 00	Administrative Requirements	4
01 32 16	Construction Progress Schedule	3
01 40 00	Quality Requirements	3
01 50 00	Temporary Facilities and Controls	2
01 60 00	Product Requirements	3
01 70 00	Execution and Closeout Requirements	5
01 78 00	Closeout Submittals	3

DIVISION 02 – EXISTING CONDITIONS

02 41 19	Minor Demolition for Remodeling	2
----------	---------------------------------------	---

DIVISIONS 03 AND 04 – Not Used

DIVISION 05 – METALS

05 12 00	Structural Steel Framing	4
05 50 00	Metal Fabrications	3

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

06 10 00	Rough Carpentry	3
----------	-----------------------	---

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

07 52 00	Cold-Applied SBS-Modified Bituminous Membrane Roofing	18
07 62 00	Sheet Metal Flashing and Trim	7
07 72 00	Roof Accessories	4
07 90 05	Joint Sealers	3

DIVISION 08 – OPENINGS – Not Used

DIVISION 09 – FINISHES

09 90 00	Painting and Coating	5
----------	----------------------------	---

DIVISIONS 10 THRU 21 – Not Used

DIVISION 22 – PLUMBING

22 05 00	Plumbing General Provisions	11
22 05 53	Plumbing Identification.....	2
22 07 10	Insulation for Plumbing Systems	6
22 11 10	Domestic Water Piping.....	3

DIVISION 23 – HEATING, VENTILATING, AND AIR-CONDITIONING

23 05 00	Mechanical General Provisions	13
23 07 30	Insulation for Hot Water Hydronic System	4
23 21 10	Hydronic Piping	3

DIVISIONS 24 AND 25 – Not used

DIVISION 26 – ELECTRICAL

26 01 01	Basic Electrical Requirements.....	6
26 05 19	Low-Voltage Electrical Power Conductors and Cables	3
26 05 26	Grounding and Bonding for Electrical Systems	6
26 05 29	Hangers and Supports for Electrical Systems	4
26 05 33	Raceways and Boxes for Electrical Systems.....	7

DIVISIONS 27 THRU 48 - Not Used

END OF SECTION

SECTION 00 01 15

LIST OF DRAWINGS

ARCHITECTURAL

A-1.1 Roof Plan & Details

STRUCTURAL

S-1.1 Platform Framing Plan

S-2.1 Framing Details

MECHANICAL

M-1.1 Mechanical Floor Plan

ELECTRICAL

E-1.0 Electrical

END OF SECTION

SECTION 00 10 00

BID DOCUMENTS AND FORMS

PART 1 GENERAL

1.01 DOCUMENTS

- A. Advertisement for Bids - ABC Form C-1, dated August 2001.
- B. Instructions to Bidders - ABC Form C-2, dated August 2001.
- C. Supplement A to the Instructions to Bidders, dated August 27, 2012.
- D. Proposal Form - ABC Form C-3, dated August 2001.
- E. Accounting of Sales Tax - ABC Form C-3A, dated October 2013
- F. DBE Forms Guidelines, dated January 17, 2012
- G. Form of Bid Bond - ABC Form C-4, dated August 2001.

1.02 DOCUMENT AVAILABILITY

- A. A copy of the documents and forms noted above is attached hereto, as provided by the Alabama Building Commission.
- B. Additional copies may be obtained from the office of the Alabama Building Commission, RSA Plaza, 770 Washington Avenue, Suite 444, Montgomery, Alabama 36130, phone (334) 242-4082.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

ADVERTISEMENT FOR BIDS

Sealed proposals will be received by **The University of Alabama in Huntsville** at the Training Room, Room Number 108, of Physical Plant Building until 2:00 p.m. CDT October 18, 2018 for: **SWIRLL Roof Hatch** at which time and place they will be publicly opened and read.

A cashier's check or bid bond payable to The University of Alabama in Huntsville in an amount not less than five (5) percent of the amount of the bid, but in no event more than \$10,000, must accompany the bidder's proposal. Performance and Payment Bonds and evidence of insurance required in the bid documents will be required at the signing of the Contract.

Drawings and specifications may be examined at the office of Nola | VanPeurseem Architects, PC, 301 Jefferson St., Huntsville, Alabama 35801; Phone 256-533.6617; Fax 256-533-6619 after October 4, 2018 and (appropriate plan rooms; i.e., F. W. Dodge, Alabama AGC, Construction Market Data, etc.).

Bid Documents may be obtained from the Architect upon deposit of \$100.00 per set, which will be refunded in full on the first 2 sets issued to each general contract bidder submitting a bonafide bid, upon return of documents in good condition within ten days of bid date. Other sets for general contractors, and sets for subcontractors and dealers, may be obtained with the same deposit, which will NOT be refunded as above. General Contractor(s) requesting and receiving documents, who decide not to bid project, must provide MINIMUM seven (7) days notice prior to bid date, of none bid, for refund of deposit on plans, following their return.

Bids must be submitted on proposal forms furnished by the Architect (Engineer) or copies thereof. All bidders bidding in amounts exceeding that established by the State Licensing Board for General Contractors must be licensed under the provisions of Title 34, Chapter 8, Code of Alabama, 1975, and must show evidence of license before bidding or bid will not be received or considered by the Architect (Engineer); the bidder shall show such evidence by clearly displaying his or her current license number on the outside of the sealed envelope in which the proposal is delivered. The Owner reserves the right to reject any or all proposals and to waive technical errors if, in the Owner's judgment, the best interests of the Owner will thereby be promoted.

Notice of Sales & Use Tax Exemption: Materials incorporated into the Work are exempt from sales and use tax pursuant to Alabama Act No. 2013-205 (effective October 1, 2013). The Contractor and its subcontractors shall be responsible for complying with rules and regulations of the Sales, Use, and Business Tax Division of the Alabama Department of Revenue regarding certificates and other qualifications necessary to claim such exemption when making qualifying purchases from vendors. The Owner shall not consider claims for additional costs resultant of the contractor's, or its subcontractors', failure to comply with such rules and regulations.

Alabama Immigration Law (Act 2011-535 and codified in state law as Title 31, Chapter 13 of the Code of Alabama 1975, amended by Act No. 2012-491) requires the University to require all Contractors to enroll in the E-Verify program and to provide documentation of enrollment in the E-Verify program with their contracts or agreements. This is applicable to all General Contractors and Subcontractors performing work on a University project.

Nonresident bidders must accompany any written bid documents with a written opinion of an attorney at law licensed to practice law in such nonresident bidder's state of domicile, as to the preferences, if any or none, granted by the law of that state to its own business entities whose principal places of business are in that state in the letting of any or all public contracts.

The University of Alabama in Huntsville
(Awarding Authority)

Nola | VanPeurseem Architects, PC
(Architect)

Advertisement to run:

Friday, September 21, 2018

Wednesday, September 26, 2018

Wednesday, October 3, 2018

INSTRUCTIONS TO BIDDERS

CONTENTS

- | | |
|---|---|
| 1. Bid Documents | 9. Withdrawal or Revision of Bids |
| 2. General Contractor's
State Licensing Requirements | 10. Opening of Bids |
| 3. Qualifications of Bidders
and Prequalification Procedures | 11. Incomplete and Irregular Bids |
| 4. Preference to Resident Contractors | 12. Bid Errors |
| 5. Examination of Bid Documents and
the Site of the Work | 13. Disqualification of Bidders |
| 6. Explanations and Interpretations | 14. Consideration of Bids |
| 7. Substitutions | 15. Determination of Low Bidder by
Use of Alternates |
| 8. Preparation and Delivery of Bids | 16. Unit Prices |
| | 17. Award of Contract |

1. BID DOCUMENTS

The Bid Documents consist of the Advertisement for Bids, these Instructions to Bidders, any modifications of or supplements to these Instructions to Bidders, the Proposal Form, and the proposed Contract Documents. The proposed Contract Documents consist of the Construction Contract, the Performance Bond and Payment Bond, the Conditions of the Contract (General, Supplemental, and other Conditions), Drawings, Specifications and all addenda issued prior to execution of the Construction Contract. Bid Documents may be obtained or examined as set forth in the Advertisement for Bids.

2. GENERAL CONTRACTOR'S STATE LICENSING REQUIREMENTS:

When the amount bid for a contract exceeds \$50,000, the bidder must be licensed by the State Licensing Board for General Contractors and must show the Architect evidence of license before bidding or the bid will not be received by the Architect or considered by the Awarding Authority. A bid exceeding the bid limit stipulated in the bidder's license, or which is for work outside of the type or types of work stipulated in the bidder's license, will not be considered. In case of a joint venture of two or more contractors, the amount of the bid shall be within the maximum bid limitation as set by the State Licensing Board for General Contractors of the combined limitations of the partners to the joint venture.

3. QUALIFICATIONS of BIDDERS and PREQUALIFICATION PROCEDURES:

a. Any special qualifications required of general contractors, subcontractors, material suppliers, or fabricators are set forth in the Bid Documents.

b. The Awarding Authority may have elected to prequalify bidders. Parties interested in bidding for this contract are directed to the Advertisement for Bids and Supplemental Instructions to Bidders to determine whether bidders must be prequalified and how they may obtain copies of the Awarding Authority's published prequalification procedures and criteria.

c. Release of Bid Documents by the Architect to a prospective bidder will not constitute any determination by the Awarding Authority or Architect that the bidder has been found to be qualified, prequalified, or responsible.

4. PREFERENCE to RESIDENT CONTRACTORS:

(If this project is federally funded in whole or in part, this Article shall not apply.)

a. In awarding the Contract, preference will be given to Alabama resident contractors and a nonresident bidder domiciled in a state having laws granting preference to local contractors shall be awarded the Contract only on the same basis as the nonresident bidder's state awards contracts to Alabama contractors bidding under similar circumstances.

b. A nonresident bidder is a contractor which is neither organized and existing under the laws of the State of Alabama, nor maintains its principal place of business in the State of Alabama. A nonresident contractor which has maintained a permanent office within the State of Alabama for at least five continuous years shall not thereafter be deemed to be a non-resident contractor so long as the contractor continues to maintain a branch office within Alabama.

5. EXAMINATION of BID DOCUMENTS and the SITE of the WORK :

Before submitting a bid for the Work, the bidders shall carefully examine the Bid Documents, visit the site, and satisfy themselves as to the nature and location of the Work, and the general and local conditions, including weather, the general character of the site or building, the character and extent of existing work within or adjacent to the site and any other work being performed thereon at the time of submission of their bids. They shall obtain full knowledge as to transportation, disposal, handling, and storage of materials, availability of water, electric power, and all other facilities in the area which will have a bearing on the performance of the Work for which they submit their bids. The submission of a bid shall constitute a representation by the bidder that the bidder has made such examination and visit and has judged for and satisfied himself or herself as to conditions to be encountered regarding the character, difficulties, quality, and quantities of work to be performed and the material and equipment to be furnished, and as to the contract requirements involved.

6. EXPLANATIONS and INTERPRETATIONS:

a. Should any bidder observe any ambiguity, discrepancy, omission, or error in the drawings and specifications, or in any other bid document, or be in doubt as to the intention and meaning of these documents, the bidder should immediately report such to the Architect and request clarification.

b. Clarification will be made only by written Addenda sent to all prospective bidders. Neither the Architect nor the Awarding Authority will be responsible in any manner for verbal answers or instructions regarding intent or meaning of the Bid Documents.

c. In the case of inconsistency between drawings and specifications or within either document, a bidder will be deemed to have included in its bid the better quality or greater quantity of the work involved unless the bidder asked for and obtained the Architect's written clarification of the requirements before submission of a bid.

7. SUBSTITUTIONS

- a. The identification of any product, material, system, item of equipment, or service in the Bid Documents by reference to a trade name, manufacturer's name, model number, etc. (hereinafter referred to as "source"), is intended to establish a required standard of performance, design, and quality and is not intended to limit competition unless the provisions of paragraph "d" below apply.
- b. When the Bid Documents identify only one or two sources, or three or more sources followed by "or approved equal" or similar wording, the bidder's proposal may be based on a source not identified but considered by the bidder to be equal to the standard of performance, design and quality as specified; however, such substitutions must ultimately be approved by the Architect. If the bidder elects to bid on a substitution without "Pre-bid Approval" as described below, then it will be understood that proof of compliance with specified requirements is the exclusive responsibility of the bidder.
- c. When the Bid Documents identify three or more sources and the list of sources is not followed by "or approved equal" or similar wording, the bidder's proposal shall be based upon one of the identified sources, unless the bidder obtains "Pre-bid Approval" of another source as described below. Under these conditions it will be expressly understood that no product, material, system, item of equipment, or service that is not identified in the Bid Documents or granted "Pre-Bid Approval" will be incorporated into the Work unless such substitution is authorized and agreed upon through a Contract Change Order.
- d. If the Bid Documents identify only one source and expressly provide that it is an approved sole source for the product, material, system, item of equipment, or service, the bidder's proposal must be based upon the identified sole source.
- e. **Procedures for "Pre-bid Approval"**. If it is desired that a product, material, system, piece of equipment, or service from a source different from those sources identified in the Bid Documents be approved as an acceptable source, application for the approval of such source must reach the hands of the Architect at least ten days prior to the date set for the opening of bids. At the Architect's discretion, this ten day provision may be waived. The application for approval of a proposed source must be accompanied by technical data which the applicant desires to submit in support of the application. The Architect will give consideration to reports from reputable independent testing laboratories, verified experience records showing the reputation of the proposed source with previous users, evidence of reputation of the source for prompt delivery, evidence of reputation of the source for efficiency in servicing its products, or any other pertinent written information. The application to the Architect for approval of a proposed source must be accompanied by a schedule setting forth in which respects the materials or equipment submitted for consideration differ from the materials or equipment designated in the Bid Documents. The burden of proof of the merit of the proposed substitution is upon the proposer. To be approved, a proposed source must also meet or exceed all express requirements of the Bid Documents. Approval, if granted, shall not be effective until published by the Architect in an addendum to the Bid Documents.

8. PREPARATION and DELIVERY of BIDS:

a. Proposal Form:

- (1) Bids must be submitted on the Proposal Form as contained in the Bid Documents; only one copy is required to be submitted.
- (2) All information requested of the bidder on the Proposal Form must be filled in. The form must be completed by typewriter or hand-printed in ink.
- (3) Identification of Bidder: On the first page of the Proposal Form the bidder must be fully identified by completing the spaces provided for:
 - (a) the legal name of the bidder,
 - (b) the state under which laws the bidder's business is organized and existing,
 - (c) the city (and state) in which the bidder has its principal offices,
 - (d) the bidder's business organization, i.e., corporation, partnership, or individual (to be indicated by marking the applicable box and writing in the type of organization if it is not one of those listed), and
 - (e) the partners or officers of the bidder's organization, if the bidder is other than an individual. If the space provided on the Proposal Form is not adequate for this listing, the bidder may insert "See Attachment" in this space and provide the listing on an attachment to the Proposal Form.
- (4) Where indicated by the format of the Proposal Form, the bidder must specify lump sum prices in both words and figures. In case of discrepancy between the prices shown in words and in figures, the words will govern.
- (5) All bid items requested in the Proposal Form, including alternate bid prices and unit prices for separate items of the Work, must be bid. If a gross sum of bid items is requested in the Proposal Form, the gross sum shall be provided by the bidder.
- (6) In the space provided in the Proposal Form under "Bidder's Alabama License", the bidder must insert his or her current general contractor's state license number, current bid limit, and type(s) of work for which bidder is licensed.
- (7) The Proposal Form shall be properly signed by the bidder. If the bidder is:
 - (a) **an individual**, that individual or his or her "authorized representative" must sign the Proposal Form;
 - (b) **a partnership**, the Proposal Form must be signed by one of the partners or an "authorized representative" of the Partnership;
 - (c) **a corporation**, the president, vice-president, secretary, or "authorized representative" of the corporation shall sign and affix the corporate seal to the Proposal Form.

As used in these Instructions to Bidders, "authorized representative" is defined as a person to whom the bidder has granted written authority to conduct business in the bidder's behalf by signing and/or modifying the bid. Such written authority shall be

signed by the bidder (the individual proprietor, or a member of the Partnership, or an officer of the Corporation) and shall be attached to the Proposal Form.

(8) Interlineation, alterations or erasures on the Proposal Form must be initialed by the bidder or its "authorized representative".

b. Bid Guaranty

(1) The Proposal Form must be accompanied by a cashier's check, drawn on an Alabama bank, or a Bid Bond, executed by a surety company duly authorized and qualified to make such bonds in the State of Alabama, payable to the Awarding Authority.

(2) If a Bid Bond is provided in lieu of a cashier's check, the bond shall be on the Bid Bond form as stipulated in the Bid Documents.

(3) The amount of the cashier's check or Bid Bond shall not be less than five percent of the contractor's bid, but is not required to be in an amount more than ten thousand dollars.

c. Delivery of Bids:

(1) Bids will be received until the time set, and at the location designated, in the Advertisement for Bids unless notice is given of postponement. Any bid not received prior to the time set for opening bids will be rejected absent extenuating circumstances and such bids shall be rejected in all cases where received after other bids are opened.

(2) Each bid shall be placed, together with the bid guaranty, in a sealed envelope. On the outside of the envelope the bidder shall write in large letters "Proposal", below which the bidder shall identify the Project and the Work bid on, the name of the bidder, and the bidder's current general contractor's state license number.

(3) Bids may be delivered in person, or by mail if ample time is allowed for delivery. When sent by mail, the sealed envelope containing the bid, marked as indicated above, shall be enclosed in another envelope for mailing.

9. WITHDRAWAL or REVISION of BIDS:

a. A bid may be withdrawn prior to the time set for opening of bids, provided a written request, executed by the bidder or the bidder's "authorized representative", is filed with the Architect prior to that time. The bid will then be returned to the bidder unopened.

b. A bid which has been sealed in its delivery envelope may be revised by writing the change in price on the outside of the delivery envelope over the signature of the bidder or the bidder's "authorized representative". In revising the bid in this manner, the bidder must only write the amount of the change in price on the envelope **and must not reveal the bid price.**

c. Written communications, signed by the bidder or its "authorized representative", to revise bids will be accepted if received by the Architect prior to the time set for opening bids. The Architect will record the instructed revision upon opening the bid. Such written communication

may be by facsimile if so stipulated in Supplemental Instructions to Bidders. In revising the bid in this manner, the bidder must only write the amount of the change in price **and must not reveal the bid price.**

d. Except as provided in Article 12 of these Instructions to Bidders, no bid shall be withdrawn, modified, or corrected after the time set for opening bids.

10. OPENING of BIDS:

Bids will be opened and read publicly at the time and place indicated in the Advertisement for Bids. Bidders or their authorized representatives are invited to be present.

11. INCOMPLETE and IRREGULAR BIDS:

A bid that is not accompanied by data required by the Bid Documents, or a bid which is in any way incomplete, may be rejected. Any bid which contains any uninitialed alterations or erasures, or any bid which contains any additions, alternate bids, or conditions not called for, or any other irregularities of any kind, will be subject to rejection.

12. BID ERRORS

a. **Errors and Discrepancies in the Proposal Form.** In case of error in the extension of prices in bids, the unit price will govern. In case of discrepancy between the prices shown in the figures and in words, the words will govern.

b. **Mistakes within the Bid.** If the low bidder discovers a mistake in its bid, the low bidder may seek withdrawal of its bid without forfeiture of its bid guaranty under the following conditions:

(1) **Timely Notice:** The low bidder must notify the Awarding Authority and Architect in writing, within three working days after the opening of bids, that a mistake was made. This notice must be given within this time frame whether or not award has been made.

(2) **Substantial Mistake:** The mistake must be of such significance as to render the bid price substantially out of proportion to the other bid prices.

(3) **Type of Mistake:** The mistake must be due to calculation or clerical error, an inadvertent omission, or a typographical error which results in an erroneous sum. A mistake of law, judgment, or opinion shall not constitute a valid ground for withdrawal without forfeiture.

(4) **Documentary Evidence:** Clear and convincing documentary evidence of the mistake must be presented to the Awarding Authority and the Architect as soon as possible, but no later than three working days after the opening of bids.

The Awarding Authority's decision regarding a low bidder's request to withdraw its bid without penalty shall be made within 10 days after receipt of the bidder's evidence or by the next regular meeting of the Awarding Authority. Upon withdrawal of bid without

penalty, the low bidder shall be prohibited from (1) doing work on the project as a subcontractor or in any other capacity and (2) bidding on the same project if it is re-bid.

13. DISQUALIFICATION of BIDDERS:

Any bidder(s) may be disqualified from consideration for contract award for the following reasons:

a. Collusion. Any agreement or collusion among bidders or prospective bidders in restraint of freedom of competition to bid at a fixed price or to refrain from bidding or otherwise shall render the bids void and shall cause the bidders or prospective bidders participating in such agreement or collusion to be disqualified from submitting further bids to the Awarding Authority on future lettings. (See § 39-2-6, Code of Alabama 1975, for possible criminal sanctions.)

b. Advance Disclosure. Any disclosure in advance of the terms of a bid submitted in response to an Advertisement for Bids shall render the proceedings void and require re-advertisement and rebid.

c. Failure to Settle Other Contracts. The Awarding Authority may reject a bid from a bidder who has not paid, or satisfactorily settled, all bills due for labor and material on other contracts in force at the time of letting.

14. CONSIDERATION of BIDS:

a. After the bids are opened and read publicly, the bid prices will be compared and the results of this comparison will be available to the public. Until the final award of the contract, however, the Awarding Authority shall have the right to reject any or all bids, and it shall have the right to waive technical errors and irregularities if, in its judgment, the bidder will not have obtained a competitive advantage and the best interests of the Awarding Authority will be promoted.

b. If the Bid Documents request bids for projects or parts of projects in combination or separately, the Bid Documents must include modifications of, or supplements to, these Instructions to Bidders setting forth applicable bid procedures. Award or awards will be made to the lowest responsible and responsive bidder or bidders in accordance with such bid procedures.

15. DETERMINATION of LOW BIDDER by USE of ALTERNATES

a. The Awarding Authority may request alternate bid prices (alternates) to facilitate either reducing the base bid to an amount within the funds available for the project or adding items to the base bid within the funds available for the project. Alternates, if any, are listed in the Proposal Form in the order in which they shall cumulatively deduct from or add to the base bid for determining the lowest bidder.

b. If alternates are included in the Proposal Form, the Awarding Authority shall determine the dollar amount of funds available and immediately prior to the opening of bids shall announce publicly the funds available for the project. The dollar amount of such funds shall be used to determine the lowest bidder as provided herein below, notwithstanding that the actual funds available for the project may subsequently be determined to be more or less than the expected funds available as determined immediately prior to the time of the opening of bids.

c. If the base bid of the lowest bidder exceeds the funds available and alternate bid prices will reduce the base bids to an amount that is within the funds available, the lowest bidder will be determined by considering, in order, the fewest number of the alternates that produces a price within the funds available. If the base bid of the lowest bidder is within the funds available and alternate bid prices will permit adding items to the base bid, the lowest bidder will be determined by considering, in order, the greatest number of the alternates that produces a price within the funds available.

d. After the lowest bidder has been determined as set forth above, the Awarding Authority may award that bidder any combination of alternates, provided said bidder is also the low bidder when only the Base Bid and such combination of alternates are considered.

16. UNIT PRICES:

a. **Work Bid on a Unit Price Basis.** Where all, or part(s), of the planned Work is bid on a unit price basis, both the unit prices and the extensions of the unit prices constitute a basis of determining the lowest responsible and responsive bidder. In cases of error in the extension of prices of bids, the unit price will govern. A bid may be rejected if any of the unit prices are obviously unbalanced or non-competitive.

b. **Unit Prices for Application to Change Orders.** As a means of predetermining unit costs for changes in certain elements of the Work, the Bid Documents may require that the bidders furnish unit prices for those items in the Proposal Form. Unit prices for application to changes in the work are not a basis for determining the lowest bidder. Non-competitive unit prices proposed by the successful bidder may be rejected and competitive prices negotiated by the Awarding Authority prior to contract award. Unit prices for application to changes in the work are not effective unless specifically included and agreed upon in the Construction Contract.

17. AWARD of CONTRACT:

a. The contract shall be awarded to the lowest responsible and responsive bidder unless the Awarding Authority finds that all the bids are unreasonable or that it is not in the best interest of the Awarding Authority to accept any of the bids. A responsible bidder is one who, among other qualities determined necessary for performance, is competent, experienced, and financially able to perform the contract. A responsive bidder is one who submits a bid that complies with the terms and conditions of the Advertisement for Bids and the Bid Documents. Minor irregularities in the bid shall not defeat responsiveness.

b. A bidder to whom award is made will be notified by telegram, confirmed facsimile, or letter to the address shown on the Proposal Form at the earliest possible date. Unless other

time frames are stipulated in Supplemental Instructions to Bidders, the maximum time frames allowed for each step of the process between the opening of bids and the issuance of an order to proceed with the work shall be as follows:

(1) Award of contract by Awarding Authority	30 calendar days after the opening of bids
(2) Contractor's return of the fully executed contract, with bonds and evidence of insurance, to the Awarding Authority	15 calendar days after the contract has been presented to the contractor for signature
(3) Awarding Authority's approval of the contractor's bonds and evidence of insurance and completion of contract execution	20 calendar days after the contractor presents complete and acceptable documents to the Architect
(4) Notice To Proceed issued to the contractor	15 calendar days after final execution of contract by the Awarding Authority, and by the Governor if his or her signature on the contract is required by law

The time frames stated above, or as otherwise specified in the Bid Documents, may be extended by written agreement between the parties. Failure by the Awarding Authority to comply with the time frames stated above or stipulated in Supplemental Instructions to Bidders, or agreed extensions thereof, shall be just cause for the withdrawal of the contractor's bid and contract without forfeiture of bid security.

c. Should the successful bidder or bidders to whom the contract is awarded fail to execute the Construction Contract and furnish acceptable Performance and Payment Bonds and satisfactory evidence of insurance within the specified period, the Awarding Authority shall retain from the bid guaranty, if it is a cashier's check, or recover from the principal or the sureties, if the guaranty is a bid bond, the difference between the amount of the contract as awarded and the amount of the bid of the next lowest responsible and responsive bidder, but not more than \$10,000. If no other bids are received, the full amount of the bid guaranty shall be so retained or recovered as liquidated damages for such default. Any sums so retained or recovered shall be the property of the Awarding Authority.

d. All bid guaranties, except those of the three lowest bona fide bidders, will be returned immediately after bids have been checked, tabulated, and the relation of the bids established. The bid guaranties of the three lowest bidders will be returned as soon as the contract bonds and the contract of the successful bidder have been properly executed and approved. When the award is deferred for a period of time longer than 15 days after the opening of the bids, all bid guaranties, except those of the potentially successful bidders, shall be returned. If no award is made within the specified period, as it may by agreement be extended, all bids will be rejected, and all guaranties returned. If any potentially successful bidder agrees in writing to a stipulated extension in time for consideration of its bid and its bid was guaranteed with a cashier's check, the Awarding Authority may permit the potentially successful bidder to substitute a satisfactory bid bond for the cashier's check.

END of INSTRUCTIONS TO BIDDERS

**SUPPLEMENT A
TO THE
INSTRUCTIONS TO BIDDERS**

1. ADD NEW PARAGRAPHS BETWEEN ITEM NO. 3 AND ITEM NO. 4 AS FOLLOWS:

3A. DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM POLICY STATEMENT

The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of UAHuntsville to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit bids/proposals. Award of this contract will be conditioned upon satisfying the requirements of this bid specification and other applicable provision as noted in the request for bids/proposals. These requirements apply to all bidders/offerors, including those who qualify as a DBE. A DBE contract goal of 1.3 percent has been established for this contract. The bidder/offeror shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26 (Attachment 6), to meet the contract goal for DBE participation in the performance of this contract.

The bidder/offeror will be required to submit the following information: (1) the names and addresses of DBE firms that will participate in the contract; (2) a description of the work that each DBE firm will perform; (3) the dollar amount of the participation of each DBE firm participating; (4) written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal; (5) written confirmation from the DBE that it is participating in the contract as provided in the commitment made under (4); and (6) if the contract goal is not met, evidence of good faith efforts. [Reference: 49 CFR Part 26.53]

3B. E-VERIFY GENERAL CONTRACTORS AND SUBCONTRACTORS

All General Contractors and Subcontractors who are successful, low bidders for award of contract, will be required to be enrolled in E-Verify.

2. PREPARATION AND DELIVER OF BIDS (ITEM NO. 8), add Paragraph d. as follows:

d. Delivery of List of Subcontractors

- (1) Each Contractor submitting a bid shall submit a List of Subcontractors, indicating a single named Subcontractor for each element of work, within twenty-four (24)

hours of time set for receipt of bids. List of Subcontractors shall be a part of bid proposal, and shall not be changed following the receipt of bids.

- (2) Delivery of List of Subcontractors shall be submitted via email or hand delivery by each bidder. Confirmation of receipt by Owner's Representative is responsibility of Bidder.
- (3) Bids received without accompanying List of Subcontractors with each category containing a single name of Subcontractor within the prescribed time limit of twenty-four hours of time set for receipt of bids, shall be basis for bid rejection.
- (4) The Owner shall have the right to request changes to the List of Subcontractors, should the Owner have experience with the named Subcontractor which is negative to Project work. Such a request shall be made in writing, shall allow the General Contractor to select the closest, next low bidder, and shall allow the General Contractor to adjust his bid by the amount substantiated by written evidence between the two bidders.
- (5) Contractor shall not change any listed Subcontractor from List submitted, without condition of item 4 above, through the execution of work on this Project. The only exception to this requirement is where extenuating circumstance(s) during the course of Project (after execution of contract and work is initiated) may cause a request to be made in writing to the Owner of Subcontractor's inability to perform based upon documented evidence acceptable to the Owner. In this exception, if approved by Owner, change shall be made via formal change order to contract.

3. AWARD OF CONTRACT (ITEM NO. 17), modify paragraph b., (1):

1. Award of contract by Awarding Authority – 60 calendar days after the opening of bids.

PROPOSAL FORM

To: The University of Alabama in Huntsville
(Awarding Authority)

Date: _____

In compliance with your Advertisement for Bids and subject to all the conditions thereof, the undersigned

(Legal Name of Bidder)

hereby proposes to furnish all labor and materials and perform all work required for the construction of
WORK _____

in accordance with Drawings and Specifications, dated _____, prepared by
_____, Architect/Engineer.

The Bidder, which is organized and existing under the laws of the State of _____,
having its principal offices in the City of _____,
is: a Corporation a Partnership an individual (other) _____.

LISTING OF PARTNERS OR OFFICERS: If Bidder is a Partnership, list all partners and their addresses; if Bidder is a Corporation, list the names, titles, and business addresses of its officers:

BIDDER'S REPRESENTATION: The Bidder declares that it has examined the site of the Work, having become fully informed regarding all pertinent conditions, and that it has examined the Drawings and Specifications (including all Addenda received) for the Work and the other Bid and Contract Documents relative thereto, and that it has satisfied itself relative to the Work to be performed.

ADDENDA: The Bidder acknowledges receipt of Addenda Nos. _____ through _____ inclusively.

BASE BID: For construction complete as shown and specified, the sum of _____
_____ Dollars (\$ _____)

ALTERNATES: If alternates as set forth in the Bid Documents are accepted, the following adjustments are to be made to the Base Bid:

- For Alternate No. 1 (add)(deduct) \$ _____
- For Alternate No. 2 (add)(deduct) \$ _____
- For Alternate No. 3 (add)(deduct) \$ _____
- For Alternate No. 4 (add)(deduct) \$ _____
- For Alternate No. 5 (add)(deduct) \$ _____
- For Alternate No. 6 (add)(deduct) \$ _____

UNIT PRICES - (See Attachment)

BID SECURITY: The undersigned agrees to enter into a Construction Contract and furnish the prescribed Performance and Payment Bonds and evidence of insurance within fifteen calendar days, or such other period stated in the Bid Documents, after the contract forms have been presented for signature, provided such presentation is made within 30 calendar days after the opening of bids, or such other period stated in the Bid Documents. As security for this condition, the undersigned further agrees that the funds represented by the Bid Bond (or cashier's check) attached hereto may be called and paid into the account of the Awarding Authority as liquidated damages for failure to so comply.

Attached hereto is a: *(Mark the appropriate box and provide the applicable information.)*

- Bid Bond, executed by _____ as Surety,
 - a cashier's check on the _____ Bank of _____,
- for the sum of _____ Dollars
(\$ _____) made payable to the Awarding Authority.

BIDDER'S ALABAMA LICENSE:

State License for General Contracting: _____
License Number Bid Limit Type(s) of Work

CERTIFICATIONS: The undersigned certifies that he or she is authorized to execute contracts on behalf of the Bidder as legally named, that this proposal is submitted in good faith without fraud or collusion with any other bidder, that the information indicated in this document is true and complete, and that the bid is made in full accord with State law. Notice of acceptance may be sent to the undersigned at the address set forth below.

By submitting this bid, the bidder is hereby certifying that they are in full compliance with Act No. 2006-557, they are not barred from bidding or entering into a contract pursuant to 41-4-116, and acknowledges that the awarding authority may declare the contract void if the certification is false.

By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the state of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

ENCLOSURES: The following list of documents is included as a part of this proposal:

- ABC Form C-3, Proposal Form
- ABC Form C-3A, Accounting of Sales Tax
- ABC Form C-4, Bid Bond
- Form 1: Disadvantaged Business Enterprise (DBE) Utilization

Legal Name of Bidder _____

Mailing Address _____

* **By (Legal Signature)** _____

* Name (type or print) _____ (*Seal*)

* Title _____

Telephone Number _____

* If other than the individual proprietor, or an above named member of the Partnership, or the above named president, vice-president, or secretary of the Corporation, attach written authority to bind the Bidder. Any modification to a bid shall be over the initials of the person signing the bid, or of an authorized representative.

ACCOUNTING OF SALES TAX

Attachment to ABC Form C-3 Proposal Form

To: _____ Date: _____
(Awarding Authority)

NAME OF PROJECT _____

SALES TAX ACCOUNTING

Pursuant to Act 2013-205, Section 1(g) the Contractor accounts for the sales tax NOT included in the bid proposal form as follows:

	<u>ESTIMATED SALES TAX AMOUNT</u>
BASE BID:	\$ _____
Alternate No. 1 (.....) <small>(Insert key word for Alternate)</small>	(add)(deduct) \$ _____
Alternate No. 2 (.....)	(add)(deduct) \$ _____
Alternate No. 3 (.....)	(add)(deduct) \$ _____
Alternate No. 4 (.....)	(add)(deduct) \$ _____
Alternate No. 5 (.....)	(add)(deduct) \$ _____
Alternate No. 6 (.....)	(add)(deduct) \$ _____

Failure to provide an accounting of sales tax shall render the bid non-responsive. Other than determining responsiveness, sales tax accounting shall not affect the bid pricing nor be considered in the determination of the lowest responsible and responsive bidder.

Legal Name of Bidder _____

Mailing Address _____

*** By (Legal Signature)** _____

*** Name (type or print)** _____

(Seal)

*** Title** _____

Telephone Number _____

FORM 1: DISADVANTAGED BUSINESS ENTERPRISE (DBE) UTILIZATION

The undersigned bidder/offeror has satisfied the requirements of the bid specification in the following manner (please check the appropriate space):

_____ The bidder/offeror is committed to a minimum of _____% DBE utilization on this contract.

_____ The bidder/offeror (if unable to meet the DBE goal of 1.3%) is committed to a minimum of _____% DBE utilization on this contract and submits documentation demonstrating good faith efforts.

Name of bidder/offeror's firm: _____

State Registration No.: _____

By: _____
(Signature of Officer)

Title: _____

FORM 2: LETTER OF INTENT

Name of bidder/offeror's firm: _____

Address: _____

City: _____ State: _____ Zip: _____

Name of DBE firm: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone Number: _____

Description of work to be performed by DBE firm:

The bidder/offeror is committed to utilizing the above-named DBE firm for the work described above.
The estimated dollar value of this work is _____ (\$_____)

Affirmation

The above-named DBE firm affirms that it will perform the portion of the contract for the estimated dollar value as state above.

By: _____ Title: _____
(Signature of Officer)

If the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

(Submit this page for each DBE Subcontractor.)

USE BLACK INK ONLY

BID BOND

The **PRINCIPAL** (*Bidder's Name and Address*)

The **SURETY** (*Name and Principal Place of Business*)

The **OWNER** (*Name and Address*)

The **PROJECT** for which the Principal's Bid is submitted: (*Project name as it appears in the Bid Documents*)

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned Principal and Surety, jointly and severally, hereby bind ourselves, our heirs, executors, administrators, successors, and assigns to the Owner in the **PENAL SUM of five percent (5%) of the amount of the Principal's bid, but in no event more than Ten-thousand Dollars (\$10,000.00).**

THE CONDITION OF THIS OBLIGATION is that the Principal has submitted to the Owner the attached bid, which is incorporated herein by reference, for the Project identified above.

NOW, THEREFORE, if, within the terms of the Bid Documents, the Owner accepts the Principal's bid and the Principal thereafter either:

- (a) executes and delivers a Construction Contract with the required Performance and Payment Bonds (each in the form contained in the Bid Documents and properly completed in accordance with the bid) and delivers evidence of insurance as prescribed in the Bid Documents, or
 - (b) fails to execute and deliver such Construction Contract with such Bonds and evidence of insurance, but pays the Owner the difference, not to exceed the Penal Sum of this Bond, between the amount of the Principal's Bid and the larger amount for which the Owner may award a Construction Contract for the same Work to another bidder,
- then**, this obligation shall be null and void, otherwise it shall remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that the obligation of the Surety under this Bond shall not in any manner be impaired or affected by any extension of the time within which the Owner may accept the Principal's bid, and the Surety does hereby waive notice of any such extension.

SIGNED AND SEALED this _____ day of _____, _____.

ATTEST:

PRINCIPAL:

By _____

Name and Title

SURETY:

ATTEST

By _____

Name and Title

SECTION 00 22 00

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.01 SUPPLEMENTS

- A. The following instructions are in addition to State of Alabama Building Commission Instructions to Bidders - ABC Form C-2, dated August 2001, and the Advertisement for Bids - ABC Form C-1, dated August 2001.

1.02 TIME

- A. Perform the Work within the time stated in Section 01 10 00 - Summary. The bidder, in submitting an offer, accepts the contract time period stated for performing the Work.

1.03 INSTRUCTIONS

- A. All sealed bids will be received by 2:00 p.m. CDT on October 18, 2018 at which time each bidder must submit a sealed envelope properly titled containing the Proposal form, the Bid Bond, DBE Form 1, and Accounting of Sales Tax form. Upon receipt of these documents the bids will be publicly opened and read aloud. Supplement A – List of Subcontractors (section 00 43 21) and DBE Form 2 are to be hand delivered or emailed to the Architect within 24 hours after receipt of bids. No changes to the base bid will be allowed after 2:00 p.m.
- B. Bids will be opened at the Training Room, Room Number 108, of Physical Plant Building, University of Alabama in Huntsville, Huntsville, AL 35899.
- C. Any parties other than General Contractors may obtain contract documents by depositing \$100.00 to Nola | VanPeurse Architects, PC for each set obtained. Deposits will not be refunded.
- D. General Contractors who submit a bona fide bid will be refunded in full on the first two (2) sets issued, upon return of documents in good condition within ten days of bid date. Additional sets may be obtained under the conditions stated in the above Item D.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 00 43 21

SUPPLEMENT A - LIST OF SUBCONTRACTORS

PARTICULARS

1.01 HEREWITH IS THE LIST OF SUBCONTRACTORS REFERENCED IN THE BID SUBMITTED BY:

1.02 (BIDDER) _____

1.03 TO: THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

1.04 DATED _____ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.

1.05 THE FOLLOWING WORK WILL BE PERFORMED (OR PROVIDED) BY SUBCONTRACTORS
AND COORDINATED BY US:

LIST OF SUBCONTRACTORS

2.01 WORK SUBJECT.....SUBCONTRACTOR NAME

2.02 STEEL _____

2.03 ROOFING (LOW SLOPE) _____

2.04 ROOF ACCESSORIES _____

2.05 PAINTING _____

2.06 PLUMBING _____

2.07 MECHANICAL _____

2.08 ELECTRICAL _____

END OF SUPPLEMENT A

SECTION 00 50 00

CONSTRUCTION DOCUMENTS AND FORMS

PART 1 GENERAL

1.01 DOCUMENTS

- A. Construction Contract - ABC Form C-5, dated August 2001.
- B. Certification of Compliance with Section Nine of ACT 2011-535
- C. Performance Bond - ABC Form C-6, dated August 2001.
- D. Payment Bond - ABC Form C-7, dated August 2001.
- E. General Conditions of the Contract - ABC Form C-8, dated August 2001.
- F. Supplement of the General Conditions of the Contract, dated August 2009.
- G. Attachment B to General Conditions of the Contract, dated October 2012.
- H. Supplementary Conditions of the Contract.
 - 1. Supplement A to the General Conditions of the Contract, dated September 15, 2009.
 - 2. Appendix A
 - 3. Appendix B
- I. General Contractor's Roofing Guarantee - ABC Form C-9, dated August 2001.
- J. Application and Certificate for Payment - ABC Form C-10, dated August 2001.
- K. Inventory of Stored Materials - ABC Form C-10SM dated August 2001.
- L. Progress Schedule and Report - ABC Form C-11, dated August 2001.
- M. Contract Change Order - ABC Form C-12, dated August 2001.
- N. Certificate of Substantial Completion - ABC Form C-13, dated August 2001.
- O. Form of Advertisement of Completion - ABC Form C-14, dated August 2001.
- P. Detail of Project Sign - ABC Form C-15, dated August 2002.
- Q. Permit Fee Calculation Worksheet
- R. Digging Permit - UAHuntsville Form
- S. State of Alabama Disclosure Statement.

1.02 DOCUMENT AVAILABILITY

- A. A copy of the documents and forms noted above is attached hereto, as provided by The University of Alabama in Huntsville,
<http://www.uah.edu/facilities-and-operations/architect/standards>.
- B. Additional copies may be obtained from the website of The University of Alabama in Huntsville,
<http://www.uah.edu/facilities-and-operations/architect/standards>.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

Numbers in margin correspond to "Checklist", ABC Form B-7

BC Project No.

CONSTRUCTION CONTRACT

(1)

(2)

This Construction Contract is entered into this day of in the year of

(3)

between the **OWNER(s)**,

(4)

and the **CONTRACTOR**,

(5)

for the **WORK** of the Project, identified as:

(6)

The **CONTRACT DOCUMENTS** are dated

and have been amended by

(7)

ADDENDA

(8)

The **ARCHITECT** is

(9)

The **CONTRACT SUM** is

Dollars

(\$) and is the sum of the Contractor's Base Bid for the Work and the following

(10)

BID ALTERNATE PRICES:

(11)

The **CONTRACT TIME** is

() calendar days.

THE OWNER AND THE CONTRACTOR AGREE AS FOLLOWS:

The Contract Documents, as defined in the General Conditions of the Contract (ABC Form C-8), are incorporated herein by reference. The Contractor shall perform the Work in accordance with the Contract Documents. The Owner will pay and the Contractor will accept as full compensation for such performance of the Work, the Contract Sum subject to additions and deductions (including liquidated damages) as provided in the Contract Documents. The Work shall be commenced on a date to be specified in a Notice to Proceed issued by the Owner or the Director, Technical Staff, Alabama Building Commission, and shall then be substantially completed within the Contract Time.

(12)

LIQUIDATED DAMAGES for which the Contractor and its Surety (if any) shall be liable and may be required to pay the Owner in accordance with the Contract Documents shall be equal to six percent interest per annum on the total Contract Sum unless a dollar amount is stipulated in the following space, in which case liquidated damages shall be determined at _____ dollars (\$ _____) per calendar day.

(13) **SPECIAL PROVISIONS** *(Special Provisions may be inserted here, such as Acceptance or Rejection of Unit Prices.)*

By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the state of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

In compliance with Act 2016-312, the contractor hereby certifies that it is not currently engaged in, and will not engage in, the boycott of a person or an entity based in or doing business with a jurisdiction with which this state can enjoy open trade.

(14) **STATE GENERAL CONTRACTOR'S LICENSE:** The Contractor does hereby certify that Contractor is currently licensed by the Alabama State Licensing Board for General Contractors and that the certificate for such license bears the following:

License No. Bid Limit: Classification:

The Owner and Contractor have entered into this Construction Contract as of the date first written above and have executed this Construction Contract in sufficient counterparts to enable each contracting party to have an originally executed Construction Contract each of which shall, without proof or accounting for the other counterparts, be deemed an original thereof.

The Owner does hereby certify that this Construction Contract was let in accordance with the provisions of Title 39, Code of Alabama 1975, as amended, and all other applicable provisions of law, and that the terms and commitments of this Construction Contract do not constitute a debt of the State of Alabama in violation of Article 11, Section 213 of the Constitution of Alabama, 1901, as amended by Amendment Number 26.

(15) APPROVALS	CONTRACTING PARTIES
<p>_____ Greg Smith, AVP Facilities & Operations</p> <p>By _____</p> <p style="text-align: center;">STATE OF ALABAMA BUILDING COMMISSION <i>(Not required for locally-funded projects.)</i></p> <p>By _____</p> <p style="text-align: center;">Director, Technical Staff</p>	<p style="text-align: center;">_____</p> <p style="text-align: center;">Contractor</p> <p>By _____</p> <p>Name & Title _____</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">Owner</p> <p>By _____</p> <p>Name & Title <u>Todd Barre', VP Finance & Administration</u></p>

**CERTIFICATION OF COMPLIANCE
WITH SECTION NINE OF ACT 2011-535**

The Undersigned Officer of _____ (Company) certifies to the Board of Trustees, University of Alabama, that the Company shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien and does attest to such by sworn affidavit signed before a notary. Furthermore, the Company certifies that it has provided its one-page E-Verify Company Profile Document to the University. During the performance of the contract, the Company shall participate in the E-Verify Program and shall verify every employee that is required to be verified according to the applicable federal rules and regulations. The Company also certifies that it will obtain sworn affidavits signed by a notary from any subcontractors furnishing goods/services under this contract attesting to the fact that they do not employ, hire for employment, or continue to employ an unauthorized alien and that they participate in the E-Verify Program and verify every employee that is required to be verified according to the applicable federal rules and regulations.

PRINT COMPANY NAME

SIGNATURE OF COMPANY OFFICER

PRINT TITLE OF COMPANY OFFICER

DATE

Sworn and subscribed to before me this _____ day of _____, 20____.

NOTARY PUBLIC

My commission expires: _____

SURETY'S BOND NUMBER

PERFORMANCE BOND

USE BLACK INK ONLY

Numbers in margin correspond to "Checklist", ABC Form B-7

- (1) **PERFORMANCE BOND**
USE BLACK INK ONLY
- (2) The **PRINCIPAL** (*Name and address of Contractor as appear in the Construction Contract*)
- (3) The **SURETY** (*Name and Principal Place of Business*)
- (4) The **OWNER** (*Name and address, same as appears in the Construction Contract*)
- (5) The **PENAL SUM** of this Bond (the Contract Sum) Dollars (\$)).
- (6) **DATE** of the Construction Contract :
- (7) The **PROJECT**: (*Same as appears in the Construction Contract*)

1. **WE, THE PRINCIPAL (hereinafter "Contractor") AND THE SURETY**, jointly and severally, hereby bind ourselves, our heirs, executors, administrators, successors, and assigns to the Owner in the Penal Sum stated above for the performance of the Contract, and Contract Change Orders, in accord with the requirements of the Contract Documents, which are incorporated herein by reference. If the Contractor performs the Contract, and Contract Change Orders, in accordance with the Contract Documents, then this obligation shall be null and void; otherwise it shall remain in full force and effect.
2. The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. All Contract Change Orders involving an increase in the Contract Sum will require consent of Surety by endorsement of the Contract Change Order form. The Surety waives notification of any Contract Change Orders involving only extension of the Contract Time.

Numbers in margin correspond to "Checklist", ABC Form B-7

3. Whenever the Architect gives the Contractor and the Surety, at their addresses stated above, a written Notice to Cure a condition for which the Contract may be terminated in accordance with the Contract Documents, the Surety may, within the time stated in the notice, cure or provide the Architect with written verification that satisfactory positive action is in process to cure the condition.
4. The Surety's obligation under this Bond becomes effective after the Contractor fails to satisfy a Notice to Cure and the Owner:
 - (a) gives the Contractor and the Surety, at their addresses stated above, a written Notice of Termination declaring the Contractor to be in default under the Contract and stating that the Contractor's right to complete the Work, or a designated portion of the Work, shall terminate seven days after the Contractor's receipt of the notice; and
 - (b) gives the Surety a written demand that, upon the effective date of the Notice of Termination, the Surety promptly fulfill its obligation under this Bond.
5. In the presence of the conditions described in Paragraph 4, the Surety shall, at its expense:
 - (a) On the effective date of the Notice of Termination, take charge of the Work and be responsible for the safety, security, and protection of the Work, including materials and equipment stored on and off the Project site, and
 - (b) Within twenty-one days after the effective date of the Notice of Termination, proceed, or provide the Owner with written verification that satisfactory positive action is in process to facilitate proceeding promptly, to complete the Work in accordance with the Contract Documents, either with the Surety's resources or through a contract between the Surety and a qualified contractor to whom the Owner has no reasonable objection.
6. As conditions precedent to taking charge of and completing the Work pursuant to Paragraph 5, the Surety shall neither require, nor be entitled to, any agreements or conditions other than those of this Bond and the Contract Documents. In taking charge of and completing the Work, the Surety shall assume all rights and obligations of the Contractor under the Contract Documents; however, the Surety shall also have the right to assert "Surety Claims" to the Owner in accordance with the Contract Documents. The presence or possibility of a Surety Claim shall not be just cause for the Surety to fail or refuse to promptly take charge of and complete the Work or for the Owner to fail or refuse to continue to make payments in accordance with the Contract Documents.
7. By accepting this Bond as a condition of executing the Construction Contract, and by taking the actions described in Paragraph 4, the Owner agrees that:
 - (a) the Owner shall promptly advise the Surety of the unpaid balance of the Contract Sum and, upon request, shall make available or furnish to the Surety, at the cost of reproduction, any portions of the Project Record, and
 - (b) as the Surety completes the Work, or has it completed by a qualified contractor, the Owner shall pay the Surety, in accordance with terms of payment of the Contract Documents, the unpaid balance of the Contract Sum, less any amounts that may be or become due the Owner from the Contractor under the Construction Contract or from the Contractor or the Surety under this Bond.
8. In the presence of the conditions described in Paragraph 4, the Surety's obligation includes responsibility for the correction of Defective Work, liquidated damages, and reimbursement of any reasonable expenses incurred by the Owner as a result of the Contractor's default under the Contract, including architectural, engineering, administrative, and legal services.

Numbers in margin correspond to "Checklist", ABC Form B-7

9. Nothing contained in this Bond shall be construed to mean that the Surety shall be liable to the Owner for an amount exceeding the Penal Sum of this Bond, except in the event that the Surety should be in default under the Bond by failing or refusing to take charge of and complete the Work pursuant to Paragraph 5. If the Surety should fail or refuse to take charge of and complete the Work, the Owner shall have the authority to take charge of and complete the Work, or have it completed, and the following costs to the Owner, less the unpaid balance of the Contract Sum, shall be recoverable under this Bond:

- (a) the cost of completing the Contractor's responsibilities under the Contract, including correction of Defective Work;
- (b) additional architectural, engineering, managerial, and administrative services, and reasonable attorneys' fees incident to completing the Work;
- (c) interest on, and the cost of obtaining, funds to supplement the unpaid balance of the Contract Sum as may be necessary to cover the foregoing costs;
- (d) the fair market value of any reductions in the scope of the Work necessitated by insufficiency of the unpaid balance of the Contract Sum and available supplemental funds to cover the foregoing costs; and
- (f) additional architectural, engineering, managerial, and administrative services, and reasonable attorneys' fees incident to ascertaining and collecting the Owner's losses under the Bond.

10. All claims and disputes arising out of or related to this bond, or its breach, shall be resolved in accordance with Article 24, General Conditions of the Contract.

(8) **SIGNED AND SEALED** this _____ day of _____, _____.

(9) **ATTEST:**

CONTRACTOR as PRINCIPAL:

By _____

Name and Title

(10) Countersigned by
Alabama Resident Agent for Surety:

SURETY:

By _____

Name

By _____

Address

Name and Title

(11) **NOTE:** Power of attorney for the Surety's signatory shall be furnished with the original and five copies of the bond.

Numbers in margin correspond to "Checklist", ABC Form B-7

(1) **PAYMENT BOND**
USE BLACK INK ONLY

SURETY'S BOND NUMBER

(2) The **PRINCIPAL** *(Name and address of Contractor, same as appears in the Construction Contract)*

(3) The **SURETY** *(Name and Principal Place of Business)*

(4) The **OWNER(s)** *(Name and address, same as appears in the Construction Contract)*

(5) The **PENAL SUM** of this Bond (the Contract Sum) _____ Dollars (\$) _____).

(6) **DATE** of the Construction Contract :

(7) The **PROJECT**: *(Same as appears in the Construction Contract)*

- 1. WE, THE PRINCIPAL (hereinafter "Contractor") AND THE SURETY**, jointly and severally, hereby bind ourselves, our heirs, executors, administrators, successors, and assigns to the Owner in the Penal Sum stated above to promptly pay all persons supplying labor, materials, or supplies for or in the prosecution of the Contract, which is incorporated herein by reference, and any modifications thereof by Contract Change Orders. If the Contractor and its Subcontractors promptly pay all persons supplying labor, materials, or supplies for or in the prosecution of the Contract and Contract Change Orders, then this obligation shall be null and void; otherwise to remain and be in full force and effect.
- 2. The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders.** All Contract Change Orders involving an increase in the Contract Sum will require consent of Surety by endorsement of the Contract Change Order form. The Surety waives notification of any Contract Change Orders involving only extension of the Contract Time.

Numbers in margin correspond to "Checklist", ABC Form B-7

- 3. Any person that has furnished labor, materials, or supplies for or in the prosecution of the Contract and Contract Change Orders for which payment has not been timely made may institute a civil action upon this Bond and have their rights and claims adjudicated in a civil action and judgment entered thereon. Notwithstanding the foregoing, a civil action may not be instituted on this bond until 45 days after written notice to the Surety of the amount claimed to be due and the nature of the claim. The civil action must commence not later than one year from the date of final settlement of the Contract. The giving of notice by registered or certified mail, postage prepaid, addressed to the Surety at any of its places of business or offices shall be deemed sufficient. In the event the Surety or Contractor fails to pay the claim in full within 45 days from the mailing of the notice, then the person or persons may recover from the Contractor and Surety, in addition to the amount of the claim, a reasonable attorney's fee based on the result, together with interest on the claim from the date of the notice.
- 4. Every person having a right of action on this bond shall, upon written application to the Owner indicating that labor, material, or supplies for the Work have been supplied and that payment has not been made, be promptly furnished a certified copy of this bond and the Construction Contract. The claimant may bring a civil action in the claimant's name on this Bond against the Contractor and the Surety, or either of them, in the county in which the Work is to be or has been performed or in any other county where venue is otherwise allowed by law.
- 5. This bond is furnished to comply with Code of Alabama, §39-1-1, and all provisions thereof shall be applicable to civil actions upon this bond.
- 6. All claims and disputes between Owner and either the Contractor or Surety arising out of or related to this bond, or its breach, shall be resolved in accordance with Article 24, General Conditions of the Contract

(8) **SIGNED AND SEALED** this _____ day of _____, _____.

(9) **ATTEST:** **CONTRACTOR as PRINCIPAL:**

By _____

Name and Title

(10) **Countersigned by**
Alabama Resident Agent for Surety:

SURETY:

By _____

By _____

Name

Name and Title

(11) **NOTE:** Power of attorney for the Surety's signatory shall be furnished with the original and five copies of the bond.

GENERAL CONDITIONS of the CONTRACT

CONTENTS

1. Definitions
2. Intent and Interpretation of the Contract Documents
3. Contractor's Representation
4. Documents Furnished to Contractor
5. Ownership of Drawings
6. Supervision, Superintendent, & Employees
7. Review of Contract Documents and Field Conditions by Contractor
8. Surveys by Contractor
9. Submittals
10. Documents and Samples at the Site
11. "As-built" Documents
12. Progress Schedule
13. Materials, Equipment & Substitutions
14. Safety & Protection of Persons & Property
15. Hazardous Materials
16. Inspection of the Work
17. Correction of Work
18. Deductions for Uncorrected Work
19. Changes in the Work
20. Claims for Extra Cost or Extra Work
21. Differing Site Conditions
22. Claims for Damages
23. Delays
24. Resolution of Claims and Disputes
25. Owner's Right to Correct Work
26. Owner's Right to Stop or Suspend the Work
27. Owner's Right to Terminate Contract
28. Contractor's Right to Suspend or Terminate
29. Progress Payments
30. Certification & Approvals for Payments
31. Payments Withheld
32. Substantial Completion
33. Occupancy or Use Prior to Completion
34. Final Payment
35. Contractor's Warranty
36. Indemnification Agreement
37. Insurance
38. Performance and Payment Bonds
39. Assignment
40. Construction by Owner or Separate Contracts
41. Subcontracts
42. Architect's Status
43. Cash Allowances
44. Permits, Laws and Regulations
45. Royalties, Patents and Copyrights
46. Use of the Site
47. Cutting and Patching
48. In-progress and Final Cleanup
49. Liquidated Damages
50. Use of Foreign Material
51. Sign

ARTICLE 1 **DEFINITIONS**

Whenever the following terms, or pronouns in place of them, are used in the Contract Documents, the intent and meaning shall be interpreted as follows:

- A. **ALABAMA BUILDING COMMISSION:** The Technical Staff of the Alabama Building Commission.
- B. **ARCHITECT:** The Architect is the person or entity lawfully licensed to practice architecture in the State of Alabama, who is under contract with the Owner as the primary design professional for the Project and identified as the Architect in the Construction Contract. The term "Architect" means the Architect or the Architect's authorized representative. If the employment of the Architect is terminated, the Owner shall employ a new Architect whose status under the Contract Documents shall be that of the former Architect. If the primary design professional for the Project is a Professional Engineer, the term "Engineer" shall be substituted for the term "Architect" wherever it appears in this document.
- C. **BC PROJECT INSPECTOR:** The member of the Technical Staff of the Alabama Building

Commission to whom the Project is assigned relative to executing the respective inspections and authorities described in Article 16, Inspection of the Work.

- D. COMMISSION:** The Alabama Building Commission, or any agency that may be designated by the Legislature as its successor.
- E. CONTRACT:** The Contract is the embodiment of the Contract Documents. The Contract represents the entire and integrated agreement between the Owner and Contractor and supersedes any prior written or oral negotiations, representations or agreements that are not incorporated into the Contract Documents. The Contract may be amended only by a Contract Change Order or a Modification to the Construction Contract. The contractual relationship which the Contract creates between the Owner and the Contractor extends to no other persons or entities. The Contract consists of the following Contract Documents, including all additions, deletions, and modifications incorporated therein before the execution of the Construction Contract:
- (1) Construction Contract
 - (2) Performance and Payment Bonds
 - (3) Conditions of the Contract (General, Supplemental, and other Conditions)
 - (4) Specifications
 - (5) Drawings
 - (6) Contract Change Orders
 - (7) Modifications to the Construction Contract (applicable to PSCA Projects)
- F. CONTRACT SUM:** The Contract Sum is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents. The term "Contract Sum" means the Contract Sum stated in the Construction Contract as may have been increased or decreased by Change Order(s) in accordance with the Contract Documents.
- G. CONTRACT TIME:** The Contract Time is the period of time in which the Contractor must achieve Substantial Completion of the Work. The date on which the Contract Time begins is specified in the written Notice To Proceed issued to the Contractor by the Owner or Director. The Date of Substantial Completion is the date established in accordance with Article 32. The term "Contract Time" means the Contract Time stated in the Construction Contract as may have been extended by Change Order(s) in accordance with the Contract Documents. The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.
- H. CONTRACTOR:** The Contractor is the person or persons, firm, partnership, joint venture, association, corporation, cooperative, limited liability company, or other legal entity, identified as such in the Construction Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.
- I. DEFECTIVE WORK:** The term "Defective Work" shall apply to: (1) any product, material, system, equipment, or service, or its installation or performance, which does not conform to the requirements of the Contract Documents, (2) in-progress or completed Work the workmanship of which does not conform to the quality specified or, if not specified, to the quality produced by skilled workers performing work of a similar nature on similar projects in the state, (3) substitutions and deviations not properly submitted and approved or otherwise authorized, (4) temporary supports, structures, or construction which will not produce the results required by the Contract Documents, and (5) materials or equipment rendered unsuitable for incorporation into the Work due

to improper storage or protection.

- J. DIRECTOR:** The Director of the Technical Staff of the Alabama Building Commission.
- K. DRAWINGS:** The Drawings are the portions of the Contract Documents showing graphically the design, location, layout, and dimensions of the Work, in the form of plans, elevations, sections, details, schedules, and diagrams.
- L. NOTICE TO PROCEED:** A proceed order issued by the Owner or Director, as applicable, fixing the date on which the Contractor shall begin the prosecution of the Work, which is also the date on which the Contract Time shall begin.
- M. OWNER:** The Owner is the entity or entities identified as such in the Construction Contract and is referred to throughout the Contract Documents as if singular in number. The term "Owner" means the Owner or the Owner's authorized representative. The term "Owner" as used herein shall be synonymous with the term "Awarding Authority" as defined and used in Title 39 - Public Works, Code of Alabama, 1975, as amended.
- N. THE PROJECT:** The Project is the total construction of which the Work required by these Contract Documents may be the entirety or only a part with other portions to be constructed by the Owner or separate contractors.
- O. PROJECT MANUAL:** The Project Manual is the volume usually assembled for the Work which may include the Advertisement for Bids, Instructions to Bidders, sample forms, General Conditions of the Contract, Supplementary Conditions, and Specifications of the Work.
- P. SPECIFICATIONS:** The Specifications are that portion of the Contract Documents which set forth in writing the standards of quality and performance of products, equipment, materials, systems, and services and workmanship required for acceptable performance of the Work.
- Q. SUBCONTRACTOR:** A Subcontractor is a person or entity who is undertaking the performance of any part of the Work by virtue of a contract with the Contractor. The term "Subcontractor" means a Subcontractor or its authorized representatives.
- R. THE WORK:** The Work is the construction and services required by the Contract Documents and includes all labor, materials, supplies, equipment, and other items and services as are necessary to produce the required construction and to fulfill the Contractor's obligations under the Contract. The Work may constitute the entire Project or only a portion of it.

ARTICLE 2

INTENT and INTERPRETATION of the CONTRACT DOCUMENTS

A. INTENT

It is the intent of the Contract Documents that the Contractor shall properly execute and complete the Work described by the Contract Documents, and unless otherwise provided in the Contract, the Contractor shall provide all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services, whether temporary

or permanent and whether or not incorporated or to be incorporated in the Work, in full accordance with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

B. COMPLEMENTARY DOCUMENTS

The Contract Documents are complementary. If Work is required by one Contract Document, the Contractor shall perform the Work as if it were required by all of the Contract Documents. However, the Contractor shall be required to perform Work only to the extent that is consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

C. ORDER of PRECEDENCE

Should any discrepancy arise between the various elements of the Contract Documents, precedence shall be given to them in the following order unless to do so would contravene the apparent Intent of the Contract Documents stated in preceding Paragraph A:

- (1) The Construction Contract.
- (2) Addenda, with those of later date having precedence over those of earlier date.
- (3) Supplementary Conditions (or other Conditions which modify the General Conditions of the Contract).
- (4) General Conditions of the Contract.
- (5) The Specifications.
- (6) Details appearing on the Drawings; large scale details shall take precedence over smaller scale details.
- (7) The Drawings; large scale drawings shall take precedence over smaller scale drawings.

D. ORGANIZATION

Except as may be specifically stated within the technical specifications, neither the organization of the Specifications into divisions, sections, or otherwise, nor any arrangement of the Drawings shall control how the Contractor subcontracts portions of the Work or assigns Work to any trade.

E. INTERPRETATION

(1) The Contract Documents shall be interpreted collectively, each part complementing the others and consistent with the Intent of the Contract Documents stated in preceding Paragraph A. Unless an item shown or described in the Contract Documents is specifically identified to be furnished or installed by the Owner or others or is identified as "Not In Contract" ("N.I.C."), the Contractor's obligation relative to that item shall be interpreted to include furnishing, assembling, installing, finishing, and/or connecting the item at the Contractor's expense to produce a product or system that is complete, appropriately tested, and in operative condition ready for use or subsequent construction or operation of the Owner or separate contractors. The omission of words or phrases for brevity of the Contract Documents, the inadvertent omission of words or phrases, or obvious typographical or written errors shall not defeat such interpretation as long as it is reasonably inferable from the Contract Documents as a whole.

(2) Words or phrases used in the Contract Documents which have well-known technical or construction industry meanings are to be interpreted consistent with such recognized meanings

unless otherwise indicated.

(3) Except as noted otherwise, references to standard specifications or publications of associations, bureaus, or organizations shall mean the latest edition of the referenced standard specification or publication as of the date of the Advertisement for Bids.

(4) In the case of inconsistency between Drawings and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.

(5) Generally, portions of the Contract Documents written in longhand take precedence over typed portions, and typed portions take precedence over printed portions.

(6) Any doubt as to the meaning of the Contract Documents or any obscurity as to the wording of them, shall be promptly submitted in writing to the Architect for written interpretation, explanation, or clarification.

F. SEVERABILITY.

The partial or complete invalidity of any one or more provision of this Contract shall not affect the validity or continuing force and effect of any other provision.

ARTICLE 3
CONTRACTOR'S REPRESENTATIONS

By executing the Construction Contract the Contractor represents to the Owner:

- A. The Contractor has visited the site of the Work to become familiar with local conditions under which the Work is to be performed and to evaluate reasonably observable conditions as compared with requirements of the Contract Documents.
- B. The Contractor shall use its best skill and attention to perform the Work in an expeditious manner consistent with the Contract Documents.
- C. The Contractor is an independent contractor and in performance of the Contract remains and shall act as an independent contractor having no authority to represent or obligate the Owner in any manner unless authorized by the Owner in writing.

ARTICLE 4
DOCUMENTS FURNISHED to CONTRACTOR

Unless otherwise provided in the Contract Documents, twenty sets of Drawings and Project Manuals will be furnished to the Contractor by the Architect without charge. Other copies requested will be furnished at reproduction cost.

ARTICLE 5
OWNERSHIP of DRAWINGS

All original or duplicated Drawings, Specifications, and other documents prepared by the Architect, and furnished to the Contractor are the property of the Architect and are to be used solely for this Project and not to be used in any manner for other work. Upon completion of the Work, all copies of Drawings and Specifications, with the exception of the Contractor's record set, shall be returned or accounted for by the Contractor to the Architect, on request.

ARTICLE 6 **SUPERVISION, SUPERINTENDENT, and EMPLOYEES**

A. SUPERVISION and CONSTRUCTION METHODS

(1) The term "Construction Methods" means the construction means, methods, techniques, sequences, and procedures utilized by the Contractor in performing the Work. The Contractor is solely responsible for supervising and coordinating the performance of the Work, including the selection of Construction Methods, unless the Contract Documents give other specific instructions concerning these matters.

(2) The Contractor is solely and completely responsible for job site safety, including the protection of persons and property in accordance with Article 14.

(3) The Contractor shall be responsible to the Owner for acts and omissions of not only the Contractor and its agents and employees, but all persons and entities, and their agents and employees, who are performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

(4) The Contractor shall be responsible to inspect the in-progress and completed Work to verify its compliance with the Contract Documents and to insure that any element or portion of the Work upon which subsequent Work is to be applied or performed is in proper condition to receive the subsequent Work.

B. SUPERINTENDENT

(1) The Contractor shall employ and maintain a competent level of supervision for the performance of the Work at the Project site, including a superintendent who shall: (a) have full authority to receive instructions from the Architect or Owner and to act on those instructions and (b) be present at the Project site at all times during which Work is being performed.

(2) Before beginning performance of the Work, the Contractor shall notify the Architect in writing of the name and qualifications of its proposed superintendent so that the Owner may review the individual's qualifications. If, for reasonable cause, the Owner refuses to approve the individual, or withdraws its approval after once giving it, the Contractor shall name a different superintendent for the Owner's review and approval. Any disapproved superintendent will not perform in that capacity thereafter at the Project site.

C. EMPLOYEES

The Contractor shall permit only fit and skilled persons to perform the Work. The Contractor shall

enforce safety procedures, strict discipline, and good order among persons performing the Work. The Contractor will remove from its employment on the Project any person who deliberately or persistently produces non-conforming Work or who fails or refuses to conform to reasonable rules of personal conduct contained in the Contract Documents or implemented by the Owner and delivered to the Contractor in writing during the course of the Work.

ARTICLE 7

REVIEW of CONTRACT DOCUMENTS and FIELD CONDITIONS by CONTRACTOR

- A. In order to facilitate assembly and installation of the Work in accordance with the Contract Documents, before starting each portion of the Work, the Contractor shall examine and compare the relevant Contract Documents, and compare them to relevant field measurements made by the Contractor and any conditions at the site affecting that portion of the Work.
- B. If the Contractor discovers any errors, omissions, or inconsistencies in the Contract Documents, the Contractor shall promptly report them to the Architect as a written request for information that includes a detailed statement identifying the specific Drawings or Specifications that are in need of clarification and the error, omission, or inconsistency discovered in them.
- (1) The Contractor shall not be expected to act as a licensed design professional and ascertain whether the Contract Documents comply with applicable laws, statutes, ordinances, building codes, and rules and regulations, but the Contractor shall be obligated to promptly notify the Architect of any such noncompliance discovered by or made known to the Contractor. If the Contractor performs Work without fulfilling this notification obligation, the Contractor shall pay the resulting costs and damages that would have been avoided by such notification.
- (2) The Contractor shall not be liable to the Owner for errors, omissions, or inconsistencies that may exist in the Contract Documents, or between the Contract Documents and conditions at the site, unless the Contractor knowingly fails to report a discovered error, omission, or inconsistency to the Architect, in which case the Contractor shall pay the resulting costs and damages that would have been avoided by such notification.
- C. If the Contractor considers the Architect's response to a request for information to constitute a change to the Contract Documents involving additional costs and/or time, the Contractor shall follow the procedures of Article 20, Claims for Extra Cost or Extra Work.
- D. If, with undue frequency, the Contractor requests information that is obtainable through reasonable examination and comparison of the Contract Documents, site conditions, and previous correspondence, interpretations, or clarifications, the Contractor shall be liable to the Owner for reasonable charges from the Architect for the additional services required to review, research, and respond to such requests for information.

ARTICLE 8

SURVEYS by CONTRACTOR

- A. The Contractor shall provide competent engineering services to assure accurate execution of the Work in accordance with the Contract Documents. The Contractor shall verify the figures given for

the contours, approaches and locations shown on the Drawings before starting any Work and be responsible for the accuracy of the finished Work. Without extra cost to the Owner, the Contractor shall engage a licensed surveyor if necessary to verify boundary lines, keep within property lines, and shall be responsible for encroachments on rights or property of public or surrounding property owners.

- B.** The Contractor shall establish all base lines for the location of the principal components of the Work and make all detail surveys necessary for construction, including grade stakes, batter boards and other working points, lines and elevations. If the Work involves alteration of or addition to existing structures or improvements, the Contractor shall locate and measure elements of the existing conditions as is necessary to facilitate accurate fabrication, assembly, and installation of new Work in the relationship, alignment, and/or connection to the existing structure or improvement as is shown in the Contract Documents.

ARTICLE 9 **SUBMITTALS**

- A.** Where required by the Contract Documents, the Contractor shall submit shop drawings, product data, samples and other information (hereinafter referred to as Submittals) to the Architect for the purpose of demonstrating the way by which the Contractor proposes to conform to the requirements of the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Architect without action.
- B.** The Contractor shall be responsible to the Owner for the accuracy of its Submittals and the conformity of its submitted information to the requirements of the Contract Documents. Each Submittal shall bear the Contractor's approval, evidencing that the Contractor has reviewed and found the information to be in compliance with the requirements of the Contract Documents. Submittals which are not marked as reviewed and approved by the Contractor may be returned by the Architect without action.
- C.** The Contractor shall prepare and deliver its submittals to the Architect sufficiently in advance of construction requirements and in a sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. In coordinating the Submittal process with its construction schedule, the Contractor shall allow sufficient time to permit adequate review by the Architect.
- D.** By approving a Submittal the Contractor represents not only that the element of Work presented in the Submittal complies with the requirements of the Contract Documents, but also that the Contractor has:
 - (1)** found the layout and/or dimensions in the Submittal to be comparable with those in the Contract Documents and other relevant Submittals and has made field measurements as necessary to verify their accuracy, and
 - (2)** determined that products, materials, systems, equipment and/or procedures presented in the Submittal are compatible with those presented, or being presented, in other relevant Submittals and with the Contractor's intended Construction Methods.
- E.** The Contractor shall not fabricate or perform any portion of the Work for which the Contract Documents require Submittals until the respective Submittals have been approved by the Architect.

- F. In the case of a resubmission, the Contractor shall direct specific attention to all revisions in a Submittal. The Architect's approval of a resubmission shall not apply to any revisions that were not brought to the Architect's attention.
- G. If the Contract Documents specify that a Submittal is to be prepared and sealed by a registered architect or licensed engineer retained by the Contractor, all drawings, calculations, specifications, and certifications of the Submittal shall bear the Alabama seal of registration and signature of the registered/licensed design professional who prepared them or under whose supervision they were prepared. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of such a Submittal, provided that all performance and design criteria that such Submittal must satisfy are sufficiently specified in the Contract Documents. The Architect will review, approve or take other appropriate action on such a Submittal only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance or design criteria specified in the Contract Documents.

H. DEVIATIONS

(1) The Architect is authorized by the Owner to approve "minor" deviations from the requirements of the Contract Documents. "Minor" deviations are defined as those which are in the interest of the Owner, do not materially alter the quality or performance of the finished Work, and do not affect the cost or time of performance of the Work. Deviations which are not "minor" may be authorized only by the Owner through the Change Order procedures of Article 19.

(2) Any deviation from the requirements of the Contract Documents contained in a Submittal shall be clearly identified as a "Deviation from Contract Requirements" (or by similar language) within the Submittal and, in a letter transmitting the Submittal to the Architect, the Contractor shall direct the Architect's attention to, and request specific approval of, the deviation. Otherwise, the Architect's approval of a Submittal does not constitute approval of deviations from the requirements of the Contract Documents contained in the Submittal.

(3) The Contractor shall bear all costs and expenses of any changes to the Work, changes to work performed by the Owner or separate contractors, or additional services by the Architect required to accommodate an approved deviation unless the Contractor has specifically informed the Architect in writing of the required changes and a Change Order has been issued authorizing the deviation and accounting for such resulting changes and costs.

I. ARCHITECT'S REVIEW and APPROVAL

(1) The Architect will review the Contractor's Submittals for conformance with requirements of, and the design concept expressed in, the Contract Documents and will approve or take other appropriate action upon them. This review is not intended to verify the accuracy and completeness of details such as dimensions and quantities nor to substantiate installation instructions or performance of equipment or systems, all of which remain the responsibility of the Contractor. However, the Architect shall advise the Contractor of any errors or omissions which the Architect may detect during this review. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

(2) The Architect will review and respond to all Submittals with reasonable promptness to avoid delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time to permit adequate review.

(3) No corrections or changes to Submittals indicated by the Architect will be considered as authorizations to perform Extra Work. If the Contractor considers such correction or change of a Submittal to require Work which differs from the requirements of the Contract Documents, the Contractor shall promptly notify the Architect in writing in accordance with Article 20, Claims for Extra Cost or Extra Work.

J. CONFORMANCE with SUBMITTALS

The Work shall be constructed in accordance with approved Submittals.

ARTICLE 10
DOCUMENTS and SAMPLES at the SITE

A. "AS ISSUED" SET

The Contractor shall maintain at the Project site, in good order, at least one copy of all Addenda, Change Orders, supplemental drawings, written directives and clarifications, and approved Submittals intact as issued, and an updated construction schedule.

B. "POSTED" SET

The Contractor shall maintain at the Project site, in good order, at least one set of the Drawings and Project Manual into which the Contractor has "posted"(incorporated) all Addenda, Change Orders, supplemental drawings, clarifications, and other information pertinent to the proper performance of the Work. The Contractor shall assure that all sets of the Drawings and Project Manuals being used by the Contractor, Subcontractors, and suppliers are "posted" with the current information to insure that updated Contract Documents are used for performance of the Work.

C. RECORD SET

One set of the Drawings and Project Manual described in Paragraph B shall be the Contractor's record set in which the Contractor shall record all field changes, corrections, selections, final locations, and other information as will be duplicated on the "As-built" documents required under Article 11. The Contractor shall record such "as-built" information in its record set as it becomes available through progress of the Work. The Contractor's performance of this requirement shall be subject to confirmation by the Architect at any time as a prerequisite to approval of Progress Payments.

D. The documents and samples required by this Article to be maintained at the Project site shall be readily available to the Architect, Owner, BC Project Inspector, and their representatives.

ARTICLE 11
"AS-BUILT" DOCUMENTS

- A. Unless otherwise provided in the Contract Documents, the Contractor shall deliver two (2) sets of "As-built" documents, as described herein, to the Architect for submission to the Owner upon completion of the Work. Each set of "As-built" documents shall consist of a copy of the Drawings and Project Manual, in like-new condition, into which the Contractor has neatly incorporated all Addenda, Change Orders, supplemental drawings, clarifications, field changes, corrections, selections, actual locations of underground utilities, and other information as required herein or specified elsewhere in the Contract Documents.
- B. The Contractor shall use the following methods for incorporating information into the "As-built" documents:
- (1) **Drawings**
- (a) To the greatest extent practicable, information shall be carefully drawn and lettered, in ink, on the Drawings in the form of sketches, details, plans, notes, and dimensions as required to provide a fully dimensioned record of the Work. When required for clarity, sketches, details, or partial plans shall be drawn on supplemental sheets and bound into the Drawings and referenced on the drawing being revised.
- (b) Where a revised drawing has been furnished by the Architect, the drawing of latest date shall be bound into the Drawings in the place of the superseded drawing.
- (c) Where a supplemental drawing has been furnished by the Architect, the supplemental drawing shall be bound into the Drawings in an appropriate location and referred to by notes added to the drawing being supplemented.
- (d) Where the Architect has furnished details, partial plans, or lengthy notes of which it would be impractical for the Contractor to redraw or letter on a drawing, such information may be affixed to the appropriate drawing with transparent tape if space is available on the drawing.
- (e) Any entry of information made in the Drawings that is the result of an Addendum or Change Order, shall identify the Addendum or Change Order from which it originated.
- (2) **Project Manual**
- (a) A copy of all Addenda and Change Orders, excluding drawings thereof, shall be bound in the front of the Project Manual.
- (b) Where a document, form, or entire specification section is revised, the latest issue shall be bound into the Project Manual in the place of the superseded issue.
- (c) Where information within a specification section is revised, the deleted or revised information shall be drawn through in ink and an adjacent note added identifying the Addendum or Change Order containing the revised information.
- C. Within ten days after the Date of Substantial Completion of the Work, or the last completed portion of the Work, the Contractor shall submit the "As-built" documents to the Architect for approval. If the Architect requires that any corrections be made, the documents will be returned in a reasonable time for correction and resubmission.

ARTICLE 12

PROGRESS SCHEDULE

(Not applicable if the Contract Time is 60 days or less.)

- A. The Contractor shall within fifteen days after the date of commencement stated in the Notice to Proceed, or such other time as may be provided in the Contract Documents, prepare and submit to

the Architect for review and approval a practicable construction schedule informing the Architect and Owner of the order in which the Contractor plans to carry on the Work within the Contract Time. The Architect's review and approval of the Contractor's construction schedule shall be only for compliance with the specified format, Contract Time, and suitability for monitoring progress of the Work and shall not be construed as a representation that the Architect has analyzed the schedule to form opinions of sequences or durations of time represented in the schedule.

- B. If a schedule format is not specified elsewhere in the Contract Documents, the construction schedule shall be prepared using ABC' Form C-11, "Progress Schedule and Report", (contained in the Project Manual) or similar format of suitable scale and detail to indicate the percentage of Work scheduled to be completed at the end of each month. At the end of each month the Contractor shall enter the actual percentage of completion on the construction schedule submit two copies to the Architect, and attach one copy to each copy of the monthly Application for Payment. The construction schedule shall be revised to reflect any agreed extensions of the Contract Time or as required by conditions of the Work.
- C. If a more comprehensive schedule format is specified elsewhere in the Contract Documents or voluntarily employed by the Contractor, ABC Form C-11 shall also be prepared, updated, and submitted as described in preceding Paragraph B.
- D. The Contractor's construction schedule shall be used by the Contractor, Architect, and Owner to determine the adequacy of the Contractor's progress. The Contractor shall be responsible for maintaining progress in accordance with the currently approved construction schedule and shall increase the number of shifts, and/or overtime operations, days of work, and/or the amount of construction plant and equipment as may be necessary to do so. If the Contractor's progress falls materially behind the currently approved construction schedule and, in the opinion of the Architect or Owner, the Contractor is not taking sufficient steps to regain schedule, the Architect may, with the Owner's concurrence, issue the Contractor a Notice to Cure pursuant to Article 27. In such a Notice to Cure the Architect may require the Contractor to submit such supplementary or revised construction schedules as may be deemed necessary to demonstrate the manner in which schedule will be regained.

ARTICLE 13 **EQUIPMENT, MATERIALS, and SUBSTITUTIONS**

- A. Every part of the Work shall be executed in a workmanlike manner in accordance with the Contract Documents and approved Submittals. All materials used in the Work shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Work and shall be new except such materials as may be expressly provided or allowed in the Contract Documents to be otherwise.
- B. Whenever a product, material, system, item of equipment, or service is identified in the Contract Documents by reference to a trade name, manufacturer's name, model number, etc.(hereinafter referred to as "source"), and only one or two sources are listed, or three or more sources are listed and followed by "or approved equal" or similar wording, it is intended to establish a required standard of performance, design, and quality, and the Contractor may submit, for the Architect's approval, products, materials, systems, equipment, or services of other sources which the Contractor can prove to the Architect's satisfaction are equal to, or exceed, the standard of

performance, design and quality specified, unless the provisions of Paragraph D below apply. Such proposed substitutions are not to be purchased or installed without the Architect's written approval of the substitution.

- C. If the Contract Documents identify three or more sources for a product, material, system, item of equipment or service to be used and the list of sources is not followed by "or approved equal" or similar wording, the Contractor may make substitution only after evaluation by the Architect and execution of an appropriate Contract Change Order.
- D. If the Contract Documents identify only one source and expressly provide that it is an approved sole source for the product, material, system, item of equipment, or service, the Contractor must furnish the identified sole source.

ARTICLE 14
SAFETY and PROTECTION of PERSONS and PROPERTY

- A. The Contractor shall be solely and completely responsible for conditions at the Project site, including safety of all persons (including employees) and property. The Contractor shall create, maintain, and supervise conditions and programs to facilitate and promote safe execution of the Work, and shall supervise the Work with the attention and skill required to assure its safe performance. Safety provisions shall conform to OSHA requirements and all other federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. Nothing contained in this Contract shall be construed to mean that the Owner has employed the Architect nor has the Architect employed its consultants to administer, supervise, inspect, or take action regarding safety programs or conditions at the Project site.
- B. The Contractor shall employ Construction Methods, safety precautions, and protective measures that will reasonably prevent damage, injury or loss to:
 - (1) workers and other persons on the Project site and in adjacent and other areas that may be affected by the Contractor's operations;
 - (2) the Work and materials and equipment to be incorporated into the Work and stored by the Contractor on or off the Project site; and
 - (3) other property on, or adjacent to, the Project site, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and other improvements not designated in the Contract Documents to be removed, relocated, or replaced.
- C. The Contractor shall be responsible for the prompt remedy of damage and loss to property, including the filing of appropriate insurance claims, caused in whole or in part by the fault or negligence of the Contractor, a Subcontractor, or anyone for whose acts they may be liable.
- D. The Contractor shall comply with and give notices required by applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety and protection of persons or property, including without limitation notices to adjoining property owners of excavation or other construction activities that potentially could cause damage or injury to adjoining property or persons thereon.

- E. The Contractor shall erect and maintain barriers, danger signs, and any other reasonable safeguards and warnings against hazards as may be required for safety and protection during performance of the Contract and shall notify owners and users of adjacent sites and utilities of conditions that may exist or arise which may jeopardize their safety.
- F. If use or storage of explosives or other hazardous materials or equipment or unusual Construction Methods are necessary for execution of the Work, the Contractor shall exercise commensurate care and employ supervisors and workers properly qualified to perform such activity.
- G. The Contractor shall furnish a qualified safety representative at the Project site whose duties shall include the prevention of accidents. The safety representative shall be the Contractor's superintendent, unless the Contractor assigns this duty to another responsible member of its on-site staff and notifies the Owner and Architect in writing of such assignment.
- H. The Contractor shall not permit a load to be applied, or forces introduced, to any part of the construction or site that may cause damage to the construction or site or endanger safety of the construction, site, or persons on or near the site.
- I. The Contractor shall have the right to act as it deems appropriate in emergency situations jeopardizing life or property. The Contractor shall be entitled to equitable adjustment of the Contract Sum or Contract Time for its efforts expended for the sole benefit of the Owner in an emergency. Such adjustment shall be determined as provided in Articles 19 and 20.
- J. The duty of the Architect and the Architect's consultants to visit the Project site to conduct periodic inspections of the Work or for other purposes shall not give rise to a duty to review or approve the adequacy of the Contractor's safety program, safety supervisor, or any safety measure which Contractor takes or fails to take in, on, or near the Project site.

ARTICLE 15

HAZARDOUS MATERIALS

- A. A Hazardous Material is any substance or material identified as hazardous under any federal, state, or local law or regulation, or any other substance or material which may be considered hazardous or otherwise subject to statutory or regulatory requirements governing its handling, disposal, and/or clean-up. Existing Hazardous Materials are Hazardous Materials discovered at the Project site and not introduced to the Project site by the Contractor, a Subcontractor, or anyone for whose acts they may be liable.
- B. If, during the performance of the Work, the Contractor encounters a suspected Existing Hazardous Material, the Contractor shall immediately stop work in the affected area, take measures appropriate to the condition to keep people away from the suspected Existing Hazardous Material, and immediately notify the Architect and Owner of the condition in writing.
- C. The Owner shall obtain the services of an independent laboratory or professional consultant, appropriately licensed and qualified, to determine whether the suspected material is a Hazardous Material requiring abatement and, if so, to certify after its abatement that it has been rendered harmless. Any abatement of Existing Hazardous Materials will be the responsibility of the Owner. The Owner will advise the Contractor in writing of the persons or entities who will determine the

nature of the suspected material and those who will, if necessary, perform the abatement. The Owner will not employ persons or entities to perform these services to whom the Contractor or Architect has reasonable objection.

- D. After certification by the Owner's independent laboratory or professional consultant that the material is harmless or has been rendered harmless, work in the affected area shall resume upon written agreement between the Owner and Contractor. If the material is found to be an Existing Hazardous Material and the Contractor incurs additional cost or delay due to the presence and abatement of the material, the Contract Sum and/or Contract Time shall be appropriately adjusted by a Contract Change Order pursuant to Article 19.
- E. The Owner shall not be responsible for Hazardous Materials introduced to the Project site by the Contractor, a Subcontractor, or anyone for whose acts they may be liable unless such Hazardous Materials were required by the Contract Documents.

ARTICLE 16 **INSPECTION of the WORK**

A. GENERAL

(1) The Contractor is solely responsible for the Work's compliance with the Contract Documents; therefore, the Contractor shall be responsible to inspect in-progress and completed Work, and shall verify its compliance with the Contract Documents and that any element or portion of the Work upon which subsequent Work is to be applied or performed is in proper condition to receive the subsequent Work. Neither the presence nor absence of inspections by the Architect, Owner, Director, BC Project Inspector, any public authority having jurisdiction, or their representatives shall relieve the Contractor of responsibility to inspect the Work, for responsibility for Construction Methods and safety precautions and programs in connection with the Work, or from any other requirement of the Contract Documents.

(2) The Architect, Owner, Director, BC Project Inspector, any public authority having jurisdiction, and their representatives shall have access at all times to the Work for inspection whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and inspection. All materials, workmanship, processes of manufacture, and methods of construction, if not otherwise stipulated in the Contract Documents, shall be subject to inspection, examination, and test at any and all places where such manufacture and/or construction are being carried on. Such inspections will not unreasonably interfere with the Contractor's operations.

(3) The Architect will inspect the Work as a representative of the Owner. The Architect's inspections may be supplemented by inspections by the BC Project Inspector as a representative of the Alabama Building Commission.

(4) The Contractor may be charged by the Owner for any extra cost of inspection incurred by the Owner or Architect on account of material and workmanship not being ready at the time of inspection set by the Contractor.

B. TYPES of INSPECTIONS

(1) SCHEDULED INSPECTIONS and CONFERENCES. Scheduled Inspections and Conferences are conducted by the Architect, scheduled by the Architect in coordination with the Contractor and BC Project Inspector, and are attended by the Contractor and applicable Subcontractors, suppliers and manufacturers, and the BC Project Inspector. Scheduled Inspections and Conferences of this Contract include:

(a) Pre-construction Conference.

(b) Pre-roofing Conference (not applicable if the Contract involves no roofing work)

(c) Above Ceiling Inspection(s): An above ceiling inspection of all spaces in the building is required before the ceiling material is installed. Above ceiling inspections are to be conducted at a time when all above ceiling systems are complete and tested to the greatest extent reasonable pending installation of the ceiling material. System identifications and markings are to be complete. All fire-rated construction including fire-stopping of penetrations and specified identification above the ceiling shall be complete. Ceiling framing and suspension systems shall be complete with lights, grilles and diffusers, access panels, fire protection drops for sprinkler heads, etc., installed in their final locations to the greatest extent reasonable. Above ceiling framing to support ceiling mounted equipment shall be complete. The above ceiling construction shall be complete to the extent that after the inspection the ceiling material can be installed without disturbance.

(d) Final Inspection(s): A Final Inspection shall establish that the Work, or a designated portion of the Work, is Substantially Complete in accordance with Article 32 and is accepted by the Architect, Owner, and BC Project Inspector as being ready for the Owner's occupancy or use. At the conclusion of this inspection, items requiring correction or completion ("punch list" items) shall be minimal and require only a short period of time for accomplishment to establish Final Acceptance of the Work. If the Work, or designated portion of the Work, includes the installation, or modification, of a fire alarm system or other life safety systems essential to occupancy, such systems shall have been tested and appropriately certified before the Final Inspection.

(e) Year-end Inspection(s): An inspection of the Work, or each separately completed portion thereof, is required near the end of the Contractor's one year warranty period(s). The subsequent delivery of the Architect's report of this inspection will serve as confirmation that the Contractor was notified of Defective Work found within the warranty period in accordance with Article 35.

(2) PERIODIC INSPECTIONS. Periodic Inspections are conducted throughout the course of the Work by the Architect, the Architect's consultants, their representatives, and the BC Project Inspector, jointly or independently, with or without advance notice to the Contractor.

(3) SPECIFIED INSPECTIONS and TESTS. Specified Inspections and Tests include inspections, tests, demonstrations, and approvals that are either specified in the Contract Documents or required by laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction, to be performed by the Contractor, one of its Subcontractors, or an independent testing laboratory or firm (whether paid for by the Contractor or Owner).

C. INSPECTIONS by the ARCHITECT

(1) The Architect is not authorized to revoke, alter, relax, or waive any requirements of the Contract Documents (other than "minor" deviations as defined in Article 9 and "minor" changes as defined in Article 19), to finally approve or accept any portion of the Work or to issue instructions contrary to the Contract Documents without concurrence of the Owner.

- (2) The Architect will visit the site at intervals appropriate to the stage of the Contractor's operations and as otherwise necessary to:
 - (a) become generally familiar with the in-progress and completed Work and the quality of the Work,
 - (b) determine whether the Work is progressing in general accordance with the Contractor's schedule and is likely to be completed within the Contract Time,
 - (c) visually compare readily accessible elements of the Work to the requirements of the Contract Documents to determine, in general, if the Contractor's performance of the Work indicates that the Work will conform to the requirements of the Contract Documents when completed,
 - (d) endeavor to guard the Owner against Defective Work,
 - (e) review and address with the Contractor any problems in implementing the requirements of the Contract Documents that the Contractor may have encountered, and
 - (f) keep the Owner fully informed about the Project.
- (3) The Architect shall have the authority to reject Defective Work or require its correction, but shall not be required to make exhaustive investigations or examinations of the in-progress or completed portions of the Work to expose the presence of Defective Work. However, it shall be an obligation of the Architect to report in writing, to the Owner, Contractor, and BC Project Inspector, any Defective Work recognized by the Architect.
- (4) The Architect shall have the authority to require the Contractor to stop work only when, in the Architect's reasonable opinion, such stoppage is necessary to avoid Defective Work. The Architect shall not be liable to the Contractor or Owner for the consequences of any decisions made by the Architect in good faith either to exercise or not to exercise this authority.
- (5) "Inspections by the Architect" includes appropriate inspections by the Architect's consultants as dictated by their respective disciplines of design and the stage of the Contractor's operations.

D. INSPECTIONS by the BC PROJECT INSPECTOR

- (1) The BC Project Inspector will:
 - (a) participate in scheduled inspections and conferences as practicable,
 - (b) perform periodic inspections of in-progress and completed Work to ensure code compliance of the Project and general conformance of the Work with the Contract Documents, and
 - (c) monitor the Contractor's progress and performance of the Work.
- (2) The BC Project Inspector shall have the authority to:
 - (a) reject Work that is not in compliance with the State Building Code adopted by the Commission, unless the Work is in accordance with the Contract Documents in which case the BC Project Inspector will advise the Architect to initiate appropriate corrective action, and
 - (b) notify the Architect, Owner, and Contractor of Defective Work recognized by the BC Project Inspector.
- (3) The BC Project Inspector's periodic inspections will usually be scheduled around key stages of construction based upon information reported by the Architect. As the Architect or Owner

deems appropriate, the BC Project Inspector, as well as other members of the Technical Staff, can be requested to schedule special inspections or meetings to address specific matters. The written findings of BC Project Inspector will be transmitted to the Owner, Contractor, and Architect.

(4) The BC Project Inspector is not authorized to revoke, alter, relax, or waive any requirements of the Contract Documents, to finally approve or accept any portion of the Work or to issue instructions contrary to the Contract Documents without concurrence of the Owner. The Contractor shall not proceed with Work as a result of instructions or findings of the BC Project Inspector which the Contractor considers to be a change to the requirements of the Contract Documents without written authorization of the Owner through the Architect.

E. UNCOVERING WORK

(1) If the Contractor covers a portion of the Work before it is examined by the Architect and this is contrary to the Architect's request or specific requirements in the Contract Documents, then, upon written request of the Architect, the Work must be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

(2) Without a prior request or specific requirement that Work be examined by the Architect before it is covered, the Architect may request that Work be uncovered for examination and the Contractor shall uncover it. If the Work is in accordance with the Contract Documents, the Contract Sum shall be equitably adjusted under Article 19 to compensate the Contractor for the costs of uncovering and replacement. If the Work is not in accordance with the Contract Documents, uncovering, correction, and replacement shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

F. SPECIFIED INSPECTIONS and TESTS

(1) The Contractor shall schedule and coordinate Specified Inspections and Tests to be made at appropriate times so as not to delay the progress of the Work or the work of the Owner or separate contractors. If the Contract Documents require that a Specified Inspection or Test be witnessed or attended by the Architect or Architect's consultant, the Contractor shall give the Architect timely notice of the time and place of the Specified Inspection or Test. If a Specified Inspection or Test reveals that Work is not in compliance with requirements of the Contract Documents, the Contractor shall bear the costs of correction, repeating the Specified Inspection or Test, and any related costs incurred by the Owner, including reasonable charges, if any, by the Architect for additional services. Through appropriate Contract Change Order the Owner shall bear costs of tests, inspections or approvals which become Contract requirements subsequent to the receipt of bids.

(2) If the Architect, Owner, or public authority having jurisdiction determines that inspections, tests, demonstrations, or approvals in addition to Specified Inspections and Tests are required, the Contractor shall, upon written instruction from the Architect, arrange for their performance by an entity acceptable to the Owner, giving timely notice to the architect of the time and place of their performance. Related costs shall be borne by the Owner unless the procedures reveal that Work is not in compliance with requirements of the Contract Documents, in which case the Contractor shall bear the costs of correction, repeating the procedures, and any related costs incurred by the Owner, including reasonable charges, if any, by the Architect for additional services.

- (3) Unless otherwise required by the Contract Documents, required certificates of Specified Inspections and Tests shall be secured by the Contractor and promptly delivered to the Architect.
- (4) Failure of any materials to pass Specified Inspections and Tests will be sufficient cause for refusal to consider any further samples of the same brand or make of that material for use in the Work.

ARTICLE 17
CORRECTION of DEFECTIVE WORK

- A. The Contractor shall, at the Contractor's expense, promptly correct Defective Work rejected by the Architect or which otherwise becomes known to the Contractor, removing the rejected or nonconforming materials and construction from the project site.
- B. Correction of Defective Work shall be performed in such a timely manner as will avoid delay of completion, use, or occupancy of the Work and the work of the Owner and separate contractors.
- C. The Contractor shall bear all expenses related to the correction of Defective Work, including but not limited to: (1) additional testing and inspections, including repeating Specified Inspections and Tests, (2) reasonable services and expenses of the Architect, and (3) the expense of making good all work of the Contractor, Owner, or separate contractors destroyed or damaged by the correction of Defective Work.

ARTICLE 18
DEDUCTIONS for UNCORRECTED WORK

If the Owner deems it advisable and in the Owner's interest to accept Defective Work, the Owner may allow part or all of such Work to remain in place, provided an equitable deduction from the Contract Sum, acceptable to the Owner, is offered by the Contractor.

ARTICLE 19
CHANGES in the WORK

A. GENERAL

(1) The Owner may at any time direct the Contractor to make changes in the Work which are within the general scope of the Contract, including changes in the Drawings, Specifications, or other portions of the Contract Documents to add, delete, or otherwise revise portions of the Work. The Architect is authorized by the Owner to direct "minor" changes in the Work by written order to the Contractor. "Minor" changes in the Work are defined as those which are in the interest of the Owner, do not materially alter the quality or performance of the finished Work, and do not affect the cost or time of performance of the Work. Changes in the Work which are not "minor" may be authorized only by the Owner.

(2) If the Owner directs a change in the Work, the change shall be incorporated into the Contract by a Contract Change Order prepared by the Architect and signed by the Contractor, Owner, and other signatories to the Construction Contract, stating their agreement upon the change or changes in the Work and the adjustments, if any, in the Contract Sum and the Contract Time.

(3) Subject to compliance with Alabama's Public Works Law, the Owner may, upon agreement by the Contractor, incorporate previously unawarded bid alternates into the Contract.

(4) In the event of a claim or dispute as to the appropriate adjustment to the Contract Sum or Contract Time due to a directive to make changes in the Work, the Work shall proceed as provided in this article subject to subsequent agreement of the parties or final resolution of the dispute pursuant to Article 24.

(5) Consent of surety will be obtained for all Contract Change Orders involving an increase in the Contract Sum.

(6) Changes in the Work shall be performed under applicable provisions of the Contract Documents and the Contractor shall proceed promptly to perform changes in the Work, unless otherwise directed by the Owner through the Architect.

B. DETERMINATION of ADJUSTMENT of the CONTRACT SUM

The adjustment of the Contract Sum resulting from a change in the Work shall be determined by one of the following methods, or a combination thereof, as selected by the Owner:

(1) **Lump Sum.** By mutual agreement to a lump sum based on or negotiated from an itemized cost proposal from the Contractor. Additions to the Contract Sum shall include the Contractor's direct costs plus a maximum 15% markup for overhead and profit. Where subcontract work is involved the total mark-up for the Contractor and a Subcontractor shall not exceed 25%. No allowance for overhead and profit shall be figured on a change which involves a net credit to the Owner. For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change, such as the cost of bonds, superintendent and other job office personnel, watchman, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

(2) **Unit Price.** By application of Unit Prices included in the Contract or subsequently agreed to by the parties. However, if the character or quantity originally contemplated is materially changed so that application of such unit price to quantities of Work proposed will cause substantial inequity to either party, the applicable unit price shall be equitably adjusted.

(3) **Force Account.** By directing the Contractor to proceed with the change in the Work on a "force account" basis under which the Contractor shall be reimbursed for reasonable expenditures incurred by the Contractor and its Subcontractors in performing added Work and the Owner shall receive reasonable credit for any deleted Work. The Contractor shall keep and present, in such form as the Owner may prescribe, an itemized accounting of the cost of the change together with sufficient supporting data. Unless otherwise stated in the directive, the adjustment of the Contract Sum shall be limited to the following:

(a) costs of labor and supervision, including employee benefits, social security, retirement, unemployment and workers' compensation insurance required by law, agreement, or under

- Contractor's or Subcontractor's standard personnel policy;
- (b) cost of materials, supplies and equipment, including cost of delivery, whether incorporated or consumed;
 - (c) rental cost of machinery and equipment, not to exceed prevailing local rates if contractor-owned;
 - (d) costs of premiums for insurance required by the Contract Documents, permit fees, and sales, use or similar taxes related to the change in the Work;
 - (e) reasonable credits to the Owner for the value of deleted Work, without Contractor or Subcontractor mark-ups; and
 - (f) for additions to the Contract Sum, mark-up of the Contractor's direct costs for overhead and profit not exceeding 15% on Contractor's work nor exceeding 25% for Contractor and Subcontractor on a Subcontractor's work. No allowance for overhead and profit shall be figured on a change which involves a net credit to the Owner. For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change, such as the cost of insurance other than mentioned above, bonds, superintendent and other job office personnel, watchman, use and rental of small tools, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

C. ADJUSTMENT of the CONTRACT TIME due to CHANGES

(1) Unless otherwise provided in the Contract Documents, the Contract Time shall be equitably adjusted for the performance of a change provided that the Contractor notifies the Architect in writing that the change will increase the time required to complete the Work. Such notice shall be provided no later than:

- (a) with the Contractor's cost proposal stating the number of days of extension requested, or
- (b) within ten days after the Contractor receives a directive to proceed with a change in advance of submitting a cost proposal, in which case the notice should provide an estimated number of days of extension to be requested, which may be subject to adjustment in the cost proposal.

(2) The Contract Time shall be extended only to the extent that the change affects the time required to complete the entire Work of the Contract, taking into account the concurrent performance of the changed and unchanged Work.

D. CHANGE ORDER PROCEDURES

(1) If the Owner proposes to make a change in the Work, the Architect will request that the Contractor provide a cost proposal for making the change to the Work. The request shall be in writing and shall adequately describe the proposed change using drawings, specifications, narrative, or a combination thereof. Within 21 days after receiving such a request, or such other time as may be stated in the request, the Contractor shall prepare and submit to the Architect a written proposal, properly itemized and supported by sufficient substantiating data to facilitate evaluation. The stated time within which the Contractor must submit a proposal may be extended if, within that time, the Contractor makes a written request with reasonable justification thereof.

(2) The Contractor may voluntarily offer a change proposal which, in the Contractor's opinion, will reduce the cost of construction, maintenance, or operation or will improve the cost-effective performance of an element of the Project, in which case the Owner, through the Architect, will

accept, reject, or respond otherwise within 21 days after receipt of the proposal, or such other reasonable time as the Contractor may state in the proposal.

(3) If the Contractor's proposal is acceptable to the Owner, or is negotiated to the mutual agreement of the Contractor and Owner, the Architect will prepare an appropriate Contract Change Order for execution. Upon receipt of the fully executed Contract Change Order, the Contractor shall proceed with the change.

(4) In advance of delivery of a fully executed Contract Change Order, the Architect may furnish to the Contractor a written authorization to proceed with an agreed change. However, such an authorization shall be effective only if it:

- (a) identifies the Contractor's accepted or negotiated proposal for the change,
- (b) states the agreed adjustments, if any, in Contract Sum and Contract Time,
- (c) states that funds are available to pay for the change, and
- (d) is signed by the Owner.

(5) If the Contractor and Owner cannot agree on the amount of the adjustment in the Contract Sum for a change, the Owner, through the Architect, may order the Contractor to proceed with the change on a Force Account basis, but the net cost to the Owner shall not exceed the amount quoted in the Contractor's proposal. Such order shall state that funds are available to pay for the change.

(6) If the Contractor does not promptly respond to a request for a proposal, or the Owner determines that the change is essential to the final product of the Work and that the change must be effected immediately to avoid delay of the Project, the Owner may:

- (a) determine with the Contractor a sufficient maximum amount to be authorized for the change and
- (b) direct the Contractor to proceed with the change on a Force Account basis pending delivery of the Contractor's proposal, stating the maximum increase in the Contract Sum that is authorized for the change.

(7) Pending agreement of the parties or final resolution of any dispute of the total amount due the Contractor for a change in the Work, amounts not in dispute for such changes in the Work may be included in Applications for Payment accompanied by an interim Change Order indicating the parties' agreement with part of all of such costs or time extension. Once a dispute is resolved, it shall be implemented by preparation and execution of an appropriate Change Order.

ARTICLE 20

CLAIMS for EXTRA COST or EXTRA WORK

- A. If the Contractor considers any instructions by the Architect, Owner, BC Project Inspector, or public authority having jurisdiction to be contrary to the requirements of the Contract Documents and will involve extra work and/or cost under the Contract, the Contractor shall give the Architect written notice thereof within ten days after receipt of such instructions, and in any event before proceeding to execute such work. As used in this Article, "instructions" shall include written or oral clarifications, directions, instructions, interpretations, or determinations.
- B. The Contractor's notification pursuant to Paragraph 20.A shall state: (1) the date, circumstances,

and source of the instructions, (2) that the Contractor considers the instructions to constitute a change to the Contract Documents and why, and (3) an estimate of extra cost and time that may be involved to the extent an estimate may be reasonably made at that time.

- C. Except for claims relating to an emergency endangering life or property, no claim for extra cost or extra work shall be considered in the absence of prior notice required under Paragraph 20.A.
- D. Within ten days of receipt of a notice pursuant to Paragraph 20.A, the Architect will respond in writing to the Contractor, stating one of the following:
 - (1) The cited instruction is rescinded.
 - (2) The cited instruction is a change in the Work and in which manner the Contractor is to proceed with procedures of Article 19, Changes in the Work.
 - (3) The cited instruction is reconfirmed, is not considered by the Architect to be a change in the Contract Documents, and the Contractor is to proceed with Work as instructed.
- E. If the Architect's response to the Contractor is as in Paragraph 20.D(3), the Contractor shall proceed with the Work as instructed. If the Contractor continues to consider the instructions to constitute a change in the Contract Documents, the Contractor shall, within ten days after receiving the Architect's response, notify the Architect in writing that the Contractor intends to submit a claim pursuant to Article 24, Resolution of Claims and Disputes

ARTICLE 21

DIFFERING SITE CONDITIONS

A. DEFINITION

"Differing Site Conditions" are:

- (1) subsurface or otherwise concealed physical conditions at the Project site which differ materially from those indicated in the Contract Documents, or
- (2) unknown physical conditions at the Project site which are of an unusual nature, differing materially from conditions ordinarily encountered and generally recognized as inherent in construction activities of the character required by the Contract Documents.

B. PROCEDURES

If Differing Site Conditions are encountered, then the party discovering the condition shall promptly notify the other party before the condition is disturbed and in no event later than ten days after discovering the condition. Upon such notice and verification that a Differing Site Condition exists, the Architect will, with reasonable promptness and with the Owner's concurrence, make changes in the Drawings and/or Specifications as are deemed necessary to conform to the Differing Site Condition. Any increase or decrease in the Contract Sum or Contract Time that is warranted by the changes will be made as provided under Article 19, Changes in the Work. If the Architect determines a Differing Site Condition has not been encountered, the Architect shall notify the Owner and Contractor in writing, stating the reason for that determination.

ARTICLE 22
CLAIMS for DAMAGES

If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time after the discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

ARTICLE 23
DELAYS

- A.** A delay beyond the Contractor's control at any time in the commencement or progress of Work by an act or omission of the Owner, Architect, or any separate contractor or by labor disputes, unusual delay in deliveries, unavoidable casualties, fires, abnormal floods, tornadoes, or other cataclysmic events of nature, may entitle the Contractor to an extension of the Contract Time provided, however, that the Contractor shall, within ten days after the delay first occurs, give written notice to the Architect of the cause of the delay and its probable effect on progress of the entire Work.
- B.** Adverse weather conditions that are more severe than anticipated for the locality of the Work during any given month may entitle the Contractor to an extension of Contract Time provided, however;
- (1) the weather conditions had an adverse effect on construction scheduled to be performed during the period in which the adverse weather occurred, which in reasonable sequence would have an effect on completion of the entire Work,
 - (2) the Contractor shall, within twenty-one days after the end of the month in which the delay occurs, give the Architect written notice of the delay that occurred during that month and its probable effect on progress of the Work, and
 - (3) within a reasonable time after giving notice of the delay, the Contractor provides the Architect with sufficient data to document that the weather conditions experienced were unusually severe for the locality of the Work during the month in question. Unless otherwise provided in the Contract Documents, data documenting unusually severe weather conditions shall compare actual weather conditions to the average weather conditions for the month in question during the previous five years as recorded by the National Oceanic and Atmospheric Administration (NOAA) or similar record-keeping entities.
- C.** Adjustments, if any, of the Contract Time pursuant to this Article shall be incorporated into the Contract by a Contract Change Order prepared by the Architect and signed by the Contractor, Owner, and other signatories to the Construction Contract or, at closeout of the Contract, by mutual written agreement between the Contractor and Owner. The adjustment of the Contract Time shall not exceed the extent to which the delay extends the time required to complete the entire Work of the Contract.
- D.** The Contractor shall not be entitled to any adjustment of the Contract Sum for damage due to

delays claimed pursuant to this Article unless the delay was caused by the Owner or Architect and was either:

- (1) the result of bad faith or active interference or
- (2) beyond the contemplation of the parties and not remedied within a reasonable time after notification by the Contractor of its presence.

ARTICLE 24 **RESOLUTION of CLAIMS and DISPUTES**

A. APPLICABILITY of ARTICLE

(1) As used in this Article, "Claims and Disputes" include claims or disputes asserted by the Contractor, its Surety, or Owner arising out of or related to the Contract, or its breach, including without limitation claims seeking, under the provisions of the Contract, equitable adjustment of the Contract Sum or Contract Time and claims and disputes arising between the Contractor (or its Surety) and Owner regarding interpretation of the Contract Documents, performance of the Work, or breach of or compliance with the terms of the Contract.

(2) "Resolution" addressed in this Article applies only to Claims and Disputes arising between the Contractor (or its Surety) and Owner and asserted after execution of the Construction Contract and prior to the date upon which final payment is made. Upon making application for final payment the Contractor may reserve the right to subsequent Resolution of existing Claims by including a list of all Claims, in stated amounts, which remain to be resolved and specifically excluding them from any release of claims executed by the Contractor, and in that event Resolution may occur after final payment is made.

B. CONTINUANCE of PERFORMANCE

An unresolved Claim or Dispute shall not be just cause for the Contractor to fail or refuse to proceed diligently with performance of the Contract or for the Owner to fail or refuse to continue to make payments in accordance with the Contract Documents.

C. GOOD FAITH EFFORT to SETTLE

The Contractor and Owner agree that, upon the assertion of a Claim by the other, they will make a good faith effort, with the Architect's assistance and advice, to achieve mutual resolution of the Claim. If mutually agreed, the Contractor and Owner may endeavor to resolve a Claim through mediation. If efforts to settle are not successful, the Claim shall be resolved in accordance with paragraph D or E below, whichever applies.

D. FINAL RESOLUTION for STATE-FUNDED CONTRACTS

(1) If the Contract is funded in whole or in part with state funds, the final Resolution of Claims and Disputes which cannot be resolved by the Contractor (or its Surety) and Owner shall be by the Director, whose decision shall be final, binding, and conclusive upon the Contractor, its Surety, and the Owner.

(2) When it becomes apparent to the party asserting a Claim (the Claimant) that an impasse to

mutual resolution has been reached, the Claimant may request in writing to the Director that the Claim be resolved by decision of the Director. Such request by the Contractor (or its Surety) shall be submitted through the Owner. Should the Owner fail or refuse to submit the Contractor's request within ten days of receipt of same, the Contractor may forward such request directly to the Director. Upon receipt of a request to resolve a Claim, the Director will instruct the parties as to procedures to be initiated and followed.

(3) If the respondent to a Claim fails or refuses to participate or cooperate in the Resolution procedures to the extent that the Claimant is compelled to initiate legal proceedings to induce the Respondent to participate or cooperate, the Claimant will be entitled to recover, and may amend its Claim to include, the expense of reasonable attorney's fees so incurred.

E. FINAL RESOLUTION for LOCALLY-FUNDED CONTRACTS

If the Contract is funded in whole with funds provided by a city or county board of education or other local governmental authority and the Contract Documents do not stipulate a binding alternative dispute resolution method, the final resolution of Claims and Disputes which cannot be resolved by the Contractor (or its Surety) and Owner may be by any legal remedy available to the parties. Alternatively, upon the written agreement of the Contractor (or its Surety) and the Owner, final Resolution of Claims and Disputes may be by submission to binding arbitration before a neutral arbitrator or panel or by submission to the Director in accordance with preceding Paragraph D.

ARTICLE 25
OWNER'S RIGHT to CORRECT DEFECTIVE WORK

If the Contractor fails or refuses to correct Defective Work in a timely manner that will avoid delay of completion, use, or occupancy of the Work or work by the Owner or separate contractors, the Architect may give the Contractor written Notice to Cure the Defective Work within a reasonable, stated time. If within ten days after receipt of the Notice to Cure the Contractor has not proceeded and satisfactorily continued to cure the Defective Work or provided the Architect with written verification that satisfactory positive action is in process to cure the Defective Work, the Owner may, without prejudice to any other remedy available to the Owner, correct the Defective Work and deduct the actual cost of the correction from payment then or thereafter due to the Contractor.

ARTICLE 26
OWNER'S RIGHT to STOP or SUSPEND the WORK

A. STOPPING the WORK for CAUSE

If the Contractor fails to correct Defective Work or persistently fails to carry out Work in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work, or any part of the Work, until the cause for the Owner's directive has been eliminated; however, the Owner's right to stop the Work shall not be construed as a duty of the Owner to be exercised for the benefit of the Contractor or any other person or entity.

B. SUSPENSION by the OWNER for CONVENIENCE

- (1) The Owner may, at any time and without cause, direct the Contractor in writing to suspend, delay or interrupt the Work, or any part of the Work, for a period of time as the Owner may determine.
- (2) The Contract Sum and Contract Time shall be adjusted, pursuant to Article 19, for reasonable increases in the cost and time caused by an Owner-directed suspension, delay or interruption of Work for the Owner's convenience. However, no adjustment to the Contract Sum shall be made to the extent that the same or concurrent Work is, was or would have been likewise suspended, delayed or interrupted for other reasons not caused by the Owner.

ARTICLE 27
OWNER'S RIGHT to TERMINATE CONTRACT

A. TERMINATION by the OWNER for CAUSE

- (1) **Causes:** The Owner may terminate the Contractor's right to complete the Work, or any designated portion of the Work, if the Contractor:
 - (a) should be adjudged bankrupt, or should make a general assignment for the benefit of the Contractor's creditors, or if a receiver should be appointed on account of the Contractor's insolvency to the extent termination for these reasons is permissible under applicable law;
 - (b) refuses or fails to prosecute the Work, or any part of the Work, with the diligence that will insure its completion within the Contract Time, including any extensions, or fails to complete the Work within the Contract Time;
 - (c) refuses or fails to perform the Work, including prompt correction of Defective Work, in a manner that will insure that the Work, when fully completed, will be in accordance with the Contract Documents;
 - (d) fails to pay for labor or materials supplied for the Work or to pay Subcontractors in accordance with the respective Subcontract;
 - (e) persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction, or the instructions of the Architect or Owner; or
 - (f) is otherwise guilty of a substantial breach of the Contract.
- (2) **Procedure for Unbonded Construction Contracts (Generally, contracts less than \$50,000):**
 - (a) **Notice to Cure:** In the presence of any of the above conditions the Architect may give the Contractor written notice to cure the condition within a reasonable, stated time, but not less than ten days after the Contractor receives the notice.
 - (b) **Notice of Termination:** If, at the expiration of the time stated in the Notice to Cure, the Contractor has not proceeded and satisfactorily continued to cure the condition or provided the Architect with written verification that satisfactory positive action is in process to cure the condition, the Owner may, without prejudice to any other rights or remedies of the Owner, give the Contractor written notice that the Contractor's right to complete the Work, or a designated portion of the Work, shall terminate seven days after the Contractor's receipt of the written Notice of Termination.
 - (c) If the Contractor satisfies a Notice to Cure, but the condition for which the notice was first given reoccurs, the Owner may give the Contractor a seven day Notice of Termination

without giving the Contractor another Notice to Cure.

- (d) At the expiration of the seven days of the termination notice, the Owner may:
 - .1 take possession of the site, of all materials and equipment stored on and off site, and of all Contractor-owned tools, construction equipment and machinery, and facilities located at the site, and
 - .2 finish the Work by whatever reasonable method the Owner may deem expedient.
- (e) The Contractor shall not be entitled to receive further payment under the Contract until the Work is completed.
- (f) If the Owner's cost of completing the Work, including correction of Defective Work, compensation for additional architectural, engineering, managerial, and administrative services, and reasonable attorneys' fees due to the default and termination, is less than the unpaid balance of the Contract Sum, the excess balance less liquidated damages for delay shall be paid to the Contractor. If such cost to the Owner including attorney's fees, plus liquidated damages, exceeds the unpaid balance of the Contract Sum, the Contractor shall pay the difference to the Owner. Final Resolution of any claim or Dispute involving the termination or any amount due any party as a result of the termination shall be pursuant to Article 24.
- (g) Upon the Contractor's request, the Owner shall furnish to the Contractor a detailed accounting of the Owner's cost of completing the Work.

(3) Procedure for Bonded Construction Contracts (Generally, contracts over \$50,000):

- (a) **Notice to Cure:** In the presence of any of the above conditions the Architect may give the Contractor and its Surety written Notice to Cure the condition within a reasonable, stated time, but not less than ten days after the Contractor receives the notice.
- (b) **Notice of Termination:** If, at the expiration of the time stated in the Notice to Cure, the Contractor has not proceeded and satisfactorily continued to cure the condition or provided the Architect with written verification that satisfactory positive action is in process to cure the condition, the Owner may, without prejudice to any other rights or remedies of the Owner, give the Contractor and its Surety written notice declaring the Contractor to be in default under the Contract and stating that the Contractor's right to complete the Work, or a designated portion of the Work, shall terminate seven days after the Contractor's receipt of the written Notice of Termination.
- (c) If the Contractor satisfies a Notice to Cure, but the condition for which the notice was first given reoccurs, the Owner may give the Contractor a Notice of Termination without giving the Contractor another Notice to Cure.
- (d) **Demand on the Performance Bond:** With the Notice of Termination the Owner shall give the Surety a written demand that, upon the effective date of the Notice of Termination, the Surety promptly fulfill its obligation to take charge of and complete the Work in accordance with the terms of the Performance Bond.
- (e) **Surety Claims:** Upon receiving the Owner's demand on the Performance Bond, the Surety shall assume all rights and obligations of the Contractor under the Contract. However, the Surety shall also have the right to assert "Surety Claims" to the Owner, which are defined as claims relating to acts or omissions of the Owner or Architect prior to termination of the Contractor which may have prejudiced its rights as Surety or its interest in the unpaid balance of the Contract Sum. If the Surety wishes to assert a Surety Claim, it shall give the Owner, through the Architect, written notice within twenty-one days after first recognizing the condition giving rise to the Surety Claim. The Surety Claim shall then be submitted to the Owner, through the Architect, no later than sixty days after giving notice thereof, but no such Surety Claims shall be considered if submitted after the date upon which final payment

becomes due. Final resolution of Surety Claims shall be pursuant to Article 24, Resolution of Claims and Disputes. The presence or possibility of a Surety Claim shall not be just cause for the Surety to fail or refuse to take charge of and complete the Work or for the Owner to fail or refuse to continue to make payments in accordance with the Contract Documents.

(f) Payments to Surety: The Surety shall be paid for completing the Work in accordance with the Contract Documents as if the Surety were the Contractor. The Owner shall have the right to deduct from payments to the Surety any reasonable costs incurred by the Owner, including compensation for additional architectural, engineering, managerial, and administrative services, and attorneys' fees as necessitated by termination of the Contractor and completion of the Work by the Surety. No further payments shall be made to the Contractor by the Owner. The Surety shall be solely responsible for any accounting to the Contractor for the portion of the Contract Sum paid to Surety by Owner or for the costs and expenses of completing the Work.

(4) Wrongful Termination: If any notice of termination by the Owner for cause, made in good faith, is determined to have been wrongly given, such termination shall be effective and compensation therefore determined as if it had been a termination for convenience pursuant to Paragraph B below.

B. TERMINATION by the OWNER for CONVENIENCE

(1) The Owner may, without cause and at any time, terminate the performance of Work under the Contract in whole, or in part, upon determination by the Owner that such termination is in the Owner's best interest. Such termination is referred to herein as Termination for Convenience.

(2) Upon receipt of a written notice of Termination for Convenience from the Owner, the Contractor shall:

- (a)** stop Work as specified in the notice;
- (b)** enter into no further subcontracts or purchase orders for materials, services, or facilities, except as may be necessary for Work directed to be performed prior to the effective date of the termination or to complete Work that is not terminated;
- (c)** terminate all existing subcontracts and purchase orders to the extent they relate to the terminated Work;
- (d)** take such actions as are necessary, or directed by the Architect or Owner, to protect, preserve, and make safe the terminated Work; and
- (e)** complete performance of the Work that is not terminated.

(3) In the event of Termination for Convenience, the Contractor shall be entitled to receive payment for the Work performed prior to its termination, including materials and equipment purchased and delivered for incorporation into the terminated Work, and any reasonable costs incurred because of the termination. Such payment shall include reasonable mark-up of costs for overhead and profit, not to exceed the limits stated in Article 19, Changes in the Work. The Contractor shall be entitled to receive payment for reasonable anticipated overhead ("home office") and shall not be entitled to receive payment for any profits anticipated to have been gained from the terminated Work. A proposal for decreasing the Contract Sum shall be submitted to the Architect by the Contractor in such time and detail, and with such supporting documentation, as is reasonably directed by the Owner. Final modification of the Contract shall be by Contract Change Order pursuant to Article 19. Any Claim or Dispute involving the termination or any amount due a party as a result shall be resolved pursuant to Article 24.

ARTICLE 28
CONTRACTOR'S RIGHT to SUSPEND or TERMINATE the CONTRACT

A. SUSPENSION by the OWNER

If all of the Work is suspended or delayed for the Owner's convenience or under an order of any court, or other public authority, for a period of sixty days, through no act or fault of the Contractor or a Subcontractor, or anyone for whose acts they may be liable, then the Contractor may give the Owner a written Notice of Termination which allows the Owner fourteen days after receiving the Notice in which to give the Contractor appropriate written authorization to resume the Work. Absent the Contractor's receipt of such authorization to resume the Work, the Contract shall terminate upon expiration of this fourteen day period and the Contractor will be compensated by the Owner as if the termination had been for the Owner's convenience pursuant to Article 27.B.

B. NONPAYMENT

The Owner's failure to pay the undisputed amount of an Application for Payment within sixty days after receiving it from the Architect (Certified pursuant to Article 30) shall be just cause for the Contractor to give the Owner fourteen days' written notice that the Work will be suspended pending receipt of payment but that the Contract shall terminate if payment is not received within fourteen days (or a longer period stated by the Contractor) of the expiration of the fourteen day notice period.

(1) If the Work is then suspended for nonpayment, but resumed upon receipt of payment, the Contractor will be entitled to compensation as if the suspension had been by the Owner pursuant to Article 26, Paragraph B.

(2) If the Contract is then terminated for nonpayment, the Contractor will be entitled to compensation as if the termination had been by the Owner pursuant to Article 27, Paragraph B.

ARTICLE 29
PROGRESS PAYMENTS

A. FREQUENCY of PROGRESS PAYMENTS

Unless otherwise provided in the Contract Documents, the Owner will make payments to the Contractor as the Work progresses based on monthly estimates prepared and certified by the Contractor, approved and certified by the Architect, and approved by the Owner and other authorities whose approval is required.

B. SCHEDULE of VALUES

Within ten days after receiving the Notice to Proceed the Contractor shall submit to the Architect a Schedule of Values, which is a breakdown of the Contract Sum showing the value of the various

parts of the Work for billing purposes. The Schedule of Values shall be prepared on 8 1/2" x 11" paper in a format that is acceptable to the Architect and Owner and shall divide the Contract Sum into as many parts ("line items") as the Architect and Owner determine necessary to permit evaluation and to show amounts attributable to Subcontractors. The Contractor's overhead and profit are to be proportionately distributed throughout the line items of the Schedule of Values. Upon approval, the Schedule of Values shall be used as a basis for monthly Applications for Payment, unless it is later found to be in error. Approved change order amounts shall be added to or incorporated into the Schedule of Values as mutually agreed by the Contractor and Architect.

C. APPLICATIONS for PAYMENTS

(1) Based on the approved Schedule of Values, each monthly Application for Payment shall show the Contractor's estimate of the value of Work performed in each line item as of the end of the billing period. The Contractor's cost of materials and equipment not yet incorporated into the Work, but delivered and suitably stored on the site, may be considered in monthly Applications for Payment.

(2) The Contractor's estimate of the value of Work performed and stored materials must represent such reasonableness as to warrant certification by the Architect to the Owner in accordance with Article 30. Each monthly Application for Payment shall be supported by such data as will substantiate the Contractor's right to payment, including without limitation copies of requisitions from subcontractors and material suppliers.

(3) If no other date is stated in the Contract Documents or agreed upon by the parties, each monthly Application for Payment shall be submitted to the Architect on or about the first day of each month and payment shall be issued to the Contractor within thirty days after an Application for Payment is Certified pursuant to Article 30 and delivered to the Owner

D. MATERIALS STORED OFF SITE

Unless otherwise provided in the Contract Documents, the Contractor's cost of materials and equipment to be incorporated into the Work, which are stored off the site, may also be considered in monthly Applications for Payment under the following conditions:

- (1) the contractor has received written approval from the Architect and Owner to store the materials or equipment off site in advance of delivering the materials to the off site location;
- (2) a Certificate of Insurance is furnished to the Architect evidencing that a special insurance policy, or rider to an existing policy, has been obtained by the Contractor providing all-risk property insurance coverage, specifically naming the materials or equipment stored, and naming the Owner as an additionally insured party;
- (3) the Architect is provided with a detailed inventory of the stored materials or equipment and the materials or equipment are clearly marked in correlation to the inventory to facilitate inspection and verification of the presence of the materials or equipment by the Architect or Owner;
- (4) the materials or equipment are properly and safely stored in a bonded warehouse, or a facility otherwise approved in advance by the Architect and Owner; and
- (5) compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest.

E. RETAINAGE

(1) "Retainage" is defined as the money earned and, therefore, belonging to the Contractor (subject to final settlement of the Contract) which has been retained by the Owner conditioned on final completion and acceptance of all Work required by the Contract Documents. Retainage shall not be relied upon by Contractor (or Surety) to cover or off-set unearned monies attributable to uncompleted or uncorrected Work.

(2) In making progress payments the Owner shall retain five percent of the estimated value of Work performed and the value of the materials stored for the Work; but after retainage has been held upon fifty percent of the Contract Sum, no additional retainage will be withheld.

F. CONTRACTOR'S CERTIFICATION

(1) Each Application for Payment shall bear the Contractor's notarized certification that, to the best of the Contractor's knowledge, information, and belief, the Work covered by the Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payments were issued and payments received from the Owner and that the current payment shown in the Application for Payment has not yet been received.

(2) By making this certification the Contractor represents to the Architect and Owner that, upon receipt of previous progress payments from the Owner, the Contractor has promptly paid each Subcontractor, in accordance with the terms of its agreement with the Subcontractor, the amount due the Subcontractor from the amount included in the progress payment on account of the Subcontractor's Work and stored materials. The Architect and Owner may advise Subcontractors and suppliers regarding percentages of completion or amounts requested and/or approved in an Application for Payment on account of the Subcontractor's Work and stored materials.

G. PAYMENT ESTABLISHES OWNERSHIP

All material and Work covered by progress payments shall become the sole property of the Owner, but the Contractor shall not be relieved from the sole responsibility for the care and protection of material and Work upon which payments have been made and for the restoration of any damaged material and Work.

ARTICLE 30
CERTIFICATION and APPROVALS for PAYMENT

- A. The Architect's review, approval, and certification of Applications for Payment shall be based on the Architect's general knowledge of the Work obtained through site visits and the information provided by the Contractor with the Application. The Architect shall not be required to perform exhaustive examinations, evaluations, or estimates of the cost of completed or uncompleted Work or stored materials to verify the accuracy of amounts requested by the Contractor, but the Architect shall have the authority to adjust the Contractor's estimate when, in the Architect's reasonable opinion, such estimates are overstated or understated.
- B. Within seven days after receiving the Contractor's monthly Application for Payment, or such other

time as may be stated in the Contract Documents, the Architect will take one of the following actions:

- (1) The Architect will approve and certify the Application as submitted and forward it as a Certification for Payment for approval by the Owner (and other approving authorities, if any) and payment.
 - (2) If the Architect takes exception to any amounts claimed by the Contractor and the Contractor and Architect cannot agree on revised amounts, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to certify to the Owner, transmitting a copy of same to the Contractor.
 - (3) To the extent the Architect determines may be necessary to protect the Owner from loss on account of any of the causes stated in Article 31, the Architect may subtract from the Contractor's estimates and will issue a Certificate for Payment to the Owner, with a copy to the Contractor, for such amount as the Architect determines is properly due and notify the Contractor and Owner in writing of the Architect's reasons for withholding payment in whole or in part.
- C. Neither the Architect's issuance of a Certificate for Payment nor the Owner's resulting progress payment shall be a representation to the Contractor that the Work in progress or completed at that time is accepted or deemed to be in conformance with the Contract Documents.
- D. The Architect shall not be required to determine that the Contractor has promptly or fully paid Subcontractors and suppliers or how or for what purpose the Contractor has used monies paid under the Construction Contract. However, the Architect may, upon request and if practical, inform any Subcontractor or supplier of the amount, or percentage of completion, approved or paid to the Contractor on account of the materials supplied or the Work performed by the Subcontractor.

ARTICLE 31 **PAYMENTS WITHHELD**

- A. The Architect may nullify or revise a previously issued Certificate for Payment prior to Owner's payment thereunder to the extent as may be necessary in the Architect's opinion to protect the Owner from loss on account of any of the following causes not discovered or fully accounted for at the time of the certification or approval of the Application for Payment:
- (1) Defective Work;
 - (2) filed, or reasonable evidence indicating probable filing of, claims arising out of the Contract by other parties against the Contractor;
 - (3) the Contractor's failure to pay for labor, materials or equipment or to pay Subcontractors;
 - (4) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
 - (5) damage suffered by the Owner or another contractor caused by the Contractor, a Subcontractor, or anyone for whose acts they may be liable;
 - (6) reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance is insufficient to cover applicable liquidated damages; or
 - (7) the Contractor's persistent failure to conform to the requirements of the Contract Documents.
- B. If the Owner deems it necessary to withhold payment pursuant to preceding Paragraph A, the

Owner will notify the Contractor and Architect in writing of the amount to be withheld and the reason for same.

- C. The Architect shall not be required to withhold payment for completed or partially completed Work for which compliance with the Contract Documents remains to be determined by Specified Inspections or Final Inspections to be performed in their proper sequence. However, if Work for which payment has been approved, certified, or made under an Application for Payment is subsequently determined to be Defective Work, the Architect shall determine an appropriate amount that will protect the Owner's interest against the Defective Work.

(1) If payment has not been made against the Application for Payment first including the Defective Work, the Architect will notify the Owner and Contractor of the amount to be withheld from the payment until the Defective Work is brought into compliance with the Contract Documents.

(2) If payment has been made against the Application for Payment first including the Defective Work, the Architect will withhold the appropriate amount from the next Application for Payment submitted after the determination of noncompliance, such amount to then be withheld until the Defective Work is brought into compliance with the Contract Documents.

- D. The amount withheld will be paid with the next Application for Payment certified and approved after the condition for which the Owner has withheld payment is removed or otherwise resolved to the Owner's satisfaction.
- E. The Owner shall have the right to withhold from payments due the Contractor under this Contract an amount equal to any amount which the Contractor owes the Owner under another contract.

ARTICLE 32

SUBSTANTIAL COMPLETION

- A. Substantial Completion is the stage in the progress of the Work when the Work or designated portion of the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use without disruption or interference by the Contractor in completing or correcting any remaining unfinished Work ("punch list" items). Substantial Completion of the Work, or a designated portion of the Work, is not achieved until so agreed in a Certificate of Substantial Completion signed by the Contractor, Architect, Owner, and Technical Staff of the Alabama Building Commission.
- B. The Contractor shall notify the Architect in writing when it considers the Work, or a portion of the Work which the Owner has agreed to accept separately, to be substantially complete and ready for a Final Inspection pursuant to Article 16. In this notification the Contractor shall identify any items remaining to be completed or corrected for Final Acceptance prior to final payment.
- C. Substantial Completion is achieved and a Final Inspection is appropriate only when a minimal number of punch list items exists and only a short period of time will be required to correct or complete them. Upon receipt of the Contractor's notice for a Final Inspection, the Architect will advise the Contractor in writing of any conditions of the Work which the Architect or Owner is aware do not constitute Substantial Completion, otherwise, a Final Inspection will proceed within a

reasonable time after the Contractor's notice is given. However, the Architect will not be required to prepare lengthy listings of punch list items; therefore, if the Final Inspection discloses that Substantial Completion has not been achieved, the Architect may discontinue or suspend the inspection until the Contractor does achieve Substantial Completion.

D. CERTIFICATE of SUBSTANTIAL COMPLETION

(1) When the Work or a designated portion of the Work is substantially complete, the Architect will prepare and sign a Certificate of Substantial Completion to be signed in order by the Contractor, Owner, and Alabama Building Commission.

(2) When signed by all parties, the Certificate of Substantial Completion shall establish the Date of Substantial Completion which is the date upon which:

(a) the Work, or designated portion of the Work, is accepted by the Architect, Owner, and Alabama Building Commission as being ready for occupancy,

(b) the Contractor's one-year and special warranties for the Work covered by the Certificate commence, unless stated otherwise in the Certificate (the one-year warranty for punch list items completed or corrected after the period allowed in the Certificate shall commence on the date of their Final Acceptance), and

(c) Owner becomes responsible for building security, maintenance, utility services, and insurance, unless stated otherwise in the Certificate.

(3) The Certificate of Substantial Completion shall set the time within which the Contractor shall finish all items on the "punch list" accompanying the Certificate. The completion of punch list items shall be a condition precedent to Final Payment.

(4) If the Work or designated portion covered by a Certificate of Substantial Completion includes roofing work, the General Contractor's (5-year) Roofing Guarantee, ABC Form C-9, must be executed by the Contractor and attached to the Certificate of Substantial Completion. If the Contract Documents specify any other roofing warranties to be provided by the roofing manufacturer, Subcontractor, or Contractor, they must also be attached to the Certificate of Substantial Completion. The Alabama Building Commission will not sign the Certificate of Substantial Completion in the absence of the roofing guarantees.

E. The Date of Substantial Completion of the Work, as set in the Certificate of Substantial Completion of the Work or of the last completed portion of the Work, establishes the extent to which the Contractor is liable for Liquidated Damages, if any; however, should the Contractor fail to complete all punch list items within thirty days, or such other time as may be stated in the respective Certificate of Substantial Completion, the Contractor shall bear any expenses, including additional Architectural services and expenses, incurred by the Owner as a result of such failure to complete punch list items in a timely manner.

ARTICLE 33

OCCUPANCY or USE PRIOR to COMPLETION

A. UPON SUBSTANTIAL COMPLETION

Prior to completion of the entire Work, the Owner may occupy or begin utilizing any designated

portion of the Work on the agreed Date of Substantial Completion of that portion of the Work.

B. BEFORE SUBSTANTIAL COMPLETION

- (1) The Owner shall not occupy or utilize any portion of the Work before Substantial Completion of that portion has been achieved.
- (2) The Owner may deliver furniture and equipment and store, or install it in place ready for occupancy and use, in any designated portion of the Work before it is substantially completed under the following conditions:
 - (a) The Owner's storage or installation of furniture and equipment will not unreasonably disrupt or interfere with the Contractor's completion of the designated portion of the Work.
 - (b) The Contractor consents to the Owner's planned action (such consent shall not be unreasonably withheld).
 - (c) The Owner shall be responsible for insurance coverage of the Owner's furniture and equipment, and the Contractor's liability shall not be increased.
 - (d) The Contractor, Architect, and Owner will jointly inspect and record the condition of the Work in the area before the Owner delivers and stores or installs furniture and equipment; the Owner will equitably compensate the Contractor for making any repairs to the Work that may subsequently be required due to the Owner's delivery and storage or installation of furniture and equipment.
 - (e) The Owner's delivery and storage or installation of furniture and equipment shall not be deemed an acceptance of any Work not completed in accordance with the requirements of the Contract Documents.

**ARTICLE 34
FINAL PAYMENT**

A. PREREQUISITES to FINAL PAYMENT

The following conditions are prerequisites to Final Payment becoming due the Contractor:

- (1) Full execution of a Certificate of Substantial Completion for the Work, or each designated portion of the Work.
- (2) Final Acceptance of the Work.
- (3) The Contractor's completion, to the satisfaction of the Architect and Owner, of all documentary requirements of the Contract Documents; such as delivery of "as-built" documents, operating and maintenance manuals, warranties, etc.
- (4) Delivery to the Owner of a final Application for Payment, prepared by the Contractor and approved and certified by the Architect.
- (5) Completion of an Advertisement for Completion pursuant to Paragraph C below.
- (6) Delivery by the Contractor to the Owner through the Architect of a Release of Claims and such other documents as may be required by Owner, satisfactory in form to the Owner pursuant to Paragraph D below.
- (7) Consent of Surety, if any, to Final Payment to Contractor.
- (8) Delivery by the Contractor to the Architect and Owner of other documents, if any, required by the Contract Documents as prerequisites to Final Payment.

B. FINAL ACCEPTANCE of the WORK

“Final Acceptance of the Work” shall be achieved when all “punch list” items recorded with the Certificate(s) of Substantial Completion are accounted for by either: **(1)** their completion or correction by the Contractor and acceptance by the Architect, Owner, and BC Project Inspector, or **(2)** their resolution under Article 18, Deductions for Uncorrected Work.

C. ADVERTISEMENT for COMPLETION

(1) If the Contract Sum is less than \$50,000: The Owner, immediately after being notified by the Architect that all other requirements of the Contract have been completed, shall give public notice of completion of the Contract by having an Advertisement for Completion published one time in a newspaper of general circulation, published in the county in which the Owner is located and shall post notice of completion of the Contract on the Owner’s bulletin board for one week, and shall require the Contractor to certify under oath that all bills have been paid in full. Final payment may be made at any time after the notice has been posted for one entire week.

(2) If the Contract Sum is more than \$50,000: The Contractor, immediately after being notified by the Architect that all other requirements of the Contract have been completed, shall give public notice of completion of the Contract by having an Advertisement for Completion, similar to the sample contained in the Project Manual, published for a period of four successive weeks in some newspaper of general circulation published within the city or county where the Work was performed. Proof of publication of the Advertisement for Completion, in duplicate, shall be made by the Contractor to the Architect by affidavit of the publisher and a printed copy of the Advertisement for Completion published, in duplicate. If no newspaper is published in the county where the work was done, the notice may be given by posting at the Court House for thirty days and proof of same made by Probate Judge or Sheriff and the Contractor. Final payment shall not be due until thirty days after this public notice is completed.

D. RELEASE of CLAIMS

The Release of Claims and other documents referenced in Paragraph A(6) above are as follows:

(1) A release executed by Contractor of all claims and claims of lien against the Owner arising under and by virtue of the Contract, other than such claims of the Contractor, if any, as may have been previously made in writing and as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein.

(2) An affidavit under oath, if required, stating that so far as the Contractor has knowledge or information, there are no claims or claims of lien which have been or will be filed by any Subcontractor, Supplier or other party for labor or material for which a claim or claim of lien could be filed.

(3) A release, if required, of all claims and claims of lien made by any Subcontractor, Supplier or other party against the Owner or unpaid Contract funds held by the Owner arising under or related to the Work on the Project; provided, however, that if any Subcontractor, Supplier or others refuse to furnish a release of such claims or claims of lien, the Contractor may furnish a bond executed by Contractor and its Surety to the Owner to provide an unconditional obligation to defend, indemnify

and hold harmless the Owner against any loss, cost or expense, including attorney's fees, arising out of or as a result of such claims, or claims of lien, in which event Owner may make Final Payment notwithstanding such claims or claims of lien. If Contractor and Surety fail to fulfill their obligations to Owner under the bond, the Owner shall be entitled to recover damages as a result of such failure, including all costs and reasonable attorney's fees incurred to recover such damages.

E. EFFECT of FINAL PAYMENT

(1) The making of Final Payment shall constitute a waiver of Claims by the Owner except those arising from:

- (a) liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
- (b) failure of the Work to comply with the requirements of the Contract Documents;
- (c) terms of warranties or indemnities required by the Contract Documents, or
- (d) latent defects.

(2) Acceptance of Final Payment by the Contractor shall constitute a waiver of claims by Contractor except those previously made in writing, identified by Contractor as unsettled at the time of final Application for Payment, and specifically excepted from the release provided for in Paragraph D(1), above.

ARTICLE 35
CONTRACTOR'S WARRANTY

A. GENERAL WARRANTY

The Contractor warrants to the Owner and Architect that all materials and equipment furnished under the Contract will be of good quality and new, except such materials as may be expressly provided or allowed in the Contract Documents to be otherwise, and that none of the Work will be Defective Work as defined in Article 1.

B. ONE-YEAR WARRANTY

(1) If, within one year after the date of Substantial Completion of the Work or each designated portion of the Work (or otherwise as agreed upon in a mutually-executed Certificate of Substantial Completion), any of the Work is found to be Defective Work, the Contractor shall promptly upon receipt of written notice from the Owner or Architect, and without expense to either, replace or correct the Defective Work to conform to the requirements of the Contract Documents, and repair all damage to the site, the building and its contents which is the result of Defective Work or its replacement or correction.

(2) The one-year warranty for punch list items shall begin on the Date of Substantial Completion if they are completed or corrected within the time period allowed in the Certificate of Substantial Completion in which they are recorded. The one-year warranty for punch list items that are not completed or corrected within the time period allowed in the Certificate of Substantial Completion, and other Work performed after Substantial Completion, shall begin on the date of Final

Acceptance of the Work. The Contractor's correction of Work pursuant to this warranty does not extend the period of the warranty. The Contractor's one-year warranty does not apply to defects or damages due to improper or insufficient maintenance, improper operation, or wear and tear during normal usage.

(3) Upon recognizing a condition of Defective Work, the Owner shall promptly notify the Contractor of the condition. If the condition is causing damage to the building, its contents, equipment, or site, the Owner shall take reasonable actions to mitigate the damage or its continuation, if practical. If the Contractor fails to proceed promptly to comply with the terms of the warranty, or to provide the Owner with satisfactory written verification that positive action is in process, the Owner may have the Defective Work replaced or corrected and the Contractor and the Contractor's Surety shall be liable for all expense incurred.

(4) **Year-end Inspection(s):** An inspection of the Work, or each separately completed portion thereof, is required near the end of the Contractor's one-year warranty period(s). The subsequent delivery of the Architect's report of a Year-end Inspection will serve as confirmation that the Contractor was notified of Defective Work found within the warranty period.

(5) The Contractor's warranty of one year is in addition to, and not a limitation of, any other remedy stated herein or available to the Owner under applicable law.

C. GENERAL CONTRACTOR'S ROOFING GUARANTEE

(1) In addition to any other roof related warranties or guarantees that may be specified in the Contract Documents, the roof and associated work shall be guaranteed by the General Contractor against leaks and defects of materials and workmanship for a period of five (5) years, starting on the Date of Substantial Completion of the Project as stated in the Certificate of Substantial Completion. This guarantee for punch list items shall begin on the Date of Substantial Completion if they are completed or corrected within the time period allowed in the Certificate of Substantial Completion in which they are recorded. The guarantee for punch list items that are not completed or corrected within the time period allowed in the Certificate of Substantial Completion shall begin on the date of Final Acceptance of the Work.

(2) The "General Contractor's Roofing Guarantee" (ABC Form C-9), included in the Project Manual, shall be executed in triplicate, signed by the appropriate party and submitted to the Architect for submission with the Certificate of Substantial Completion to the Owner and the Building Commission.

(3) This guarantee does not include costs which might be incurred by the General Contractor in making visits to the site requested by the Owner regarding roof problems that are due to lack of proper maintenance (keeping roof drains and/or gutters clear of debris that cause a stoppage of drainage which results in water ponding, overflowing of flashing, etc.), or damages caused by vandalism or misuse of roof areas. Should the contractor be required to return to the job to correct problems of this nature that are determined not to be related to faulty workmanship and materials in the installation of the roof, payment for actions taken by the Contractor in response to such request will be the responsibility of the Owner. A detailed written report shall be made by the General Contractor on each of these 'Service Calls' with copies to the Architect, Owner and Building

Commission.

D. SPECIAL WARRANTIES

(1) The Contractor shall deliver to the Owner through the Architect all special or extended warranties required by the Contract Documents from the Contractor, Subcontractors, and suppliers.

(2) The Contractor and the Contractor's Surety shall be liable to the Owner for such special warranties during the Contractor's one-year warranty; thereafter, the Contractor's obligations relative to such special warranties shall be to provide reasonable assistance to the Owner in their enforcement.

E. ASSUMPTION of GUARANTEES of OTHERS

If the Contractor disturbs, alters, or damages any work guaranteed under a separate contract, thereby voiding the guarantee of that work, the Contractor shall restore the work to a condition satisfactory to the Owner and shall also guarantee it to the same extent that it was guaranteed under the separate contract.

**ARTICLE 36
INDEMNIFICATION AGREEMENT**

To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Owner, Architect, Architect's consultants, Alabama Building Commission, State Department of Education (if applicable), and their agents, employees, and consultants (hereinafter collectively referred to as the "Indemnitees") from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of, related to, or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including loss of use resulting therefrom, and is caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether such claim, damage, loss or expense is caused in part, or is alleged but not legally established to have been caused in whole or in part by the negligence or other fault of a party indemnified hereunder.

- A. This indemnification shall extend to all claims, damages, losses and expenses for injury or damage to adjacent or neighboring property, or persons injured thereon, that arise out of, relate to, or result from performance of the Work.
- B. This indemnification does not extend to the liability of the Architect, or the Architect's Consultants, agents, or employees, arising out of (1) the preparation or approval of maps, shop drawings, opinions, reports, surveys, field orders, Change Orders, drawings or specifications, or (2) the giving of or the failure to give directions or instructions, provided such giving or failure to give instructions is the primary cause of the injury or damage.
- C. This indemnification does not apply to the extent of the sole negligence of the Indemnitees.

ARTICLE 37
CONTRACTOR'S and SUBCONTRACTORS' INSURANCE

A. GENERAL

(1) RESPONSIBILITY. The Contractor shall be responsible to the Owner from the time of the signing of the Construction Contract or from the beginning of the first work, whichever shall be earlier, for all injury or damage of any kind resulting from any negligent act or omission or breach, failure or other default regarding the work by the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of who may be the owner of the property.

(2) INSURANCE PROVIDERS. Each of the insurance coverages required below shall be issued by an insurer licensed by the Insurance Commissioner to transact the business of insurance in the State of Alabama for the applicable line of insurance, and such insurer (or, for qualified self-insureds or group self-insureds, a specific excess insurer providing statutory limits) must have a Best Policyholders Rating of "A-" or better and a financial size rating of Class V or larger.

(3) NOTIFICATION ENDORSEMENT. Each policy shall be endorsed to provide that the insurance company agrees that the policy shall not be canceled, changed, allowed to lapse or allowed to expire for any reason until thirty days after the Owner has received written notice by certified mail as evidenced by return receipt or until such time as other insurance coverage providing protection equal to protection called for in the Contract Documents shall have been received, accepted and acknowledged by the Owner. Such notice shall be valid only as to the Project as shall have been designated by Project Name and Number in said notice.

(4) INSURANCE CERTIFICATES. The Contractor shall procure the insurance coverages identified below, or as otherwise required in the Contract Documents, at the Contractor's own expense, and to evidence that such insurance coverages are in effect, the Contractor shall furnish the Owner an insurance certificate(s) acceptable to the Owner and listing the Owner as the certificate holder. The insurance certificate(s) must be delivered to the Owner with the Construction Contract and Bonds for final approval and execution of the Construction Contract. The insurance certificate must provide the following:

- (a) Name and address of authorized agent of the insurance company
- (b) Name and address of insured
- (c) Name of insurance company or companies
- (d) Description of policies
- (e) Policy Number(s)
- (f) Policy Period(s)
- (g) Limits of liability
- (h) Name and address of Owner as certificate holder
- (i) Project Name and Number, if any
- (j) Signature of authorized agent of the insurance company
- (k) Telephone number of authorized agent of the insurance company

(I) Mandatory thirty day notice of cancellation / non-renewal / change

(5) **MAXIMUM DEDUCTIBLE.** Self-insured retention, except for qualified self-insurers or group self-insurers, in any policy shall not exceed \$25,000.00.

B. INSURANCE COVERAGES

Unless otherwise provided in the Contract Documents, the Contractor shall purchase the types of insurance coverages with liability limits not less than as follows:

(1) WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE

(a) Workers' Compensation coverage shall be provided in accordance with the statutory coverage required in Alabama. A group insurer must submit a certificate of authority from the Alabama Department of Industrial Relations approving the group insurance plan. A self-insurer must submit a certificate from the Alabama Department of Industrial Relations stating the Contractor qualifies to pay its own workers' compensation claims.

(b) Employer's Liability Insurance limits shall be at least:

- .1 Bodily Injury by Accident - \$1,000,000 each accident
- .2 Bodily Injury by Disease - \$1,000,000 each employee

(2) COMMERCIAL GENERAL LIABILITY INSURANCE

(a) Commercial General Liability Insurance, written on an ISO Occurrence Form (current edition as of the date of Advertisement for Bids) or equivalent, shall include, but need not be limited to, coverage for bodily injury and property damage arising from premises and operations liability, products and completed operations liability, blasting and explosion, collapse of structures, underground damage, personal injury liability and contractual liability. The Commercial General Liability Insurance shall provide at minimum the following limits:

<u>Coverage</u>	<u>Limit</u>
.1 General Aggregate	\$ 2,000,000.00 per Project
.2 Products, Completed Operations Aggregate	\$ 2,000,000.00 per Project
.3 Personal and Advertising Injury	\$ 1,000,000.00 per Occurrence
.4 Each Occurrence	\$ 1,000,000.00

(b) Additional Requirements for Commercial General Liability Insurance:

- .1 The policy shall name the Owner, Architect, Alabama Building Commission, State Department of Education (if applicable), and their agents, consultants and employees as additional insureds, state that this coverage shall be primary insurance for the additional insureds; and contain no exclusions of the additional insureds relative to job accidents.
- .2 The policy must include separate per project aggregate limits.

(3) COMMERCIAL BUSINESS AUTOMOBILE LIABILITY INSURANCE

(a) Commercial Business Automobile Liability Insurance which shall include coverage for bodily injury and property damage arising from the operation of any owned, non-owned or hired automobile. The Commercial Business Automobile Liability Insurance Policy shall provide not less than \$1,000,000 Combined Single Limits for each occurrence.

(b) The policy shall name the Owner, Architect, Alabama Building Commission, State Department of Education (if applicable), and their agents, consultants, and employees as

additional insureds.

(4) COMMERCIAL UMBRELLA LIABILITY INSURANCE

(a) Commercial Umbrella Liability Insurance to provide excess coverage above the Commercial General Liability, Commercial Business Automobile Liability and the Workers' Compensation and Employer's Liability to satisfy the minimum limits set forth herein.

(b) Minimum Combined Primary Commercial General Liability and Commercial/Excess Umbrella Limits of:

.1 \$ 5,000,000 per Occurrence

.2 \$ 5,000,000 Aggregate

(c) Additional Requirements for Commercial Umbrella Liability Insurance:

.1 The policy shall name the Owner, Architect, Alabama Building Commission, State Department of Education (if applicable), and their agents, consultants, and employees as additional insureds.

.2 The policy must be on an "occurrence" basis.

(5) BUILDER'S RISK INSURANCE

(a) The Builder's Risk Policy shall be made payable to the Owner and Contractor, as their interests may appear. The policy amount shall be equal to 100% of the Contract Sum, written on a Causes of Loss - Special Form (current edition as of the date of Advertisement for Bids), or its equivalent. All deductibles shall be the sole responsibility of the Contractor.

(b) The policy shall be endorsed as follows:

"The following may occur without diminishing, changing, altering or otherwise affecting the coverage and protection afforded the insured under this policy:

(i) Furniture and equipment may be delivered to the insured premises and installed in place ready for use; or

(ii) Partial or complete occupancy by Owner; or

(iii) Performance of work in connection with construction operations insured by the Owner, by agents or lessees or other contractors of the Owner, or by contractors of the lessee of the Owner."

C. SUBCONTRACTORS' INSURANCE

(1) WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE. The Contractor shall require each Subcontractor to obtain and maintain Workers' Compensation and Employer's Liability Insurance coverages as described in preceding Paragraph B, or to be covered by the Contractor's Workers' Compensation and Employer's Liability Insurance while performing Work under the Contract.

(2) LIABILITY INSURANCE. The Contractor shall require each Subcontractor to obtain and maintain adequate General Liability, Automobile Liability, and Umbrella Liability Insurance coverages similar to those described in preceding Paragraph B. Such coverage shall be in effect at all times that a Subcontractor is performing Work under the Contract.

(3) ENFORCEMENT RESPONSIBILITY. The Contractor shall have responsibility to enforce its Subcontractors' compliance with these or similar insurance requirements; however, the Contractor shall, upon request, provide the Architect or Owner acceptable evidence of insurance for any Subcontractor.

D. TERMINATION of OBLIGATION to INSURE

Unless otherwise expressly provided in the Contract Documents, the obligation to insure as provided herein shall continue as follows:

(1) BUILDER'S RISK INSURANCE. The obligation to insure under Subparagraph B(5) shall remain in effect until the Date of Substantial Completion as shall be established in the Certificate of Substantial Completion. In the event that multiple Certificates of Substantial Completion covering designated portions of the Work are issued, Builder's Risk coverage shall remain in effect until the Date of Substantial Completion as shall be established in the last issued Certificate of Substantial Completion. However, in the case that the Work involves separate buildings, Builder's Risk coverage of each separate building may terminate on the Date of Substantial Completion as established in the Certificate of Substantial Completion issued for each building.

(2) PRODUCTS and COMPLETED OPERATIONS. The obligation to carry Products and Completed Operations coverage specified under Subparagraph B(2) shall remain in effect for two years after the Date(s) of Substantial Completion.

(3) ALL OTHER INSURANCE. The obligation to carry other insurance coverages specified under Subparagraphs B(1) through B(4) and Paragraph C shall remain in effect after the Date(s) of Substantial Completion until such time as all Work required by the Contract Documents is completed. Equal or similar insurance coverages shall remain in effect if, after completion of the Work, the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, returns to the Project to perform warranty or maintenance work pursuant to the terms of the Contract Documents.

E. WAIVERS of SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors performing construction or operations related to the Project, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by builder's risk insurance or other property insurance applicable to the Work or to other property located within or adjacent to the Project, except such rights as they may have to proceeds of such insurance held by the Owner or Contractor as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors, if any, and the subcontractor, sub-subcontractors, suppliers, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The Policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to the person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged. The waivers provided for in this paragraph shall survive final acceptance and continue to apply to insured losses to the Work or other property on or adjacent to the Project.

PERFORMANCE and PAYMENT BONDS

A. GENERAL

Upon signing and returning the Construction Contract to the Owner for final approval and execution, the Contractor shall, at the Contractor's expense, furnish to the Owner a Performance Bond and a Payment Bond, each in a penal sum equal to 100% of the Contract Sum. Each bond shall be on the form contained in the Project Manual, shall be executed by a surety company (Surety) acceptable to the Owner and duly authorized and qualified to make such bonds in the State of Alabama in the required amounts, shall be countersigned by an authorized, Alabama resident agent of the Surety who is qualified to execute such instruments, and shall have attached thereto a power of attorney of the signing official.

The provisions of this Article are not applicable to this Contract if the Contract Sum is less than \$50,000, unless bonds are required for this Contract in the Supplemental General Conditions.

B. PERFORMANCE BOND

Through the Performance Bond, the Surety's obligation to the Owner shall be to assure the prompt and faithful performance of the Contract and Contract Change Orders. The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. In case of default on the part of the Contractor, the Surety shall take charge of and complete the Work in accordance with the terms of the Performance Bond. Any reasonable expenses incurred by the Owner as a result of default on the part of the Contractor, including architectural, engineering, administrative, and legal services, shall be recoverable under the Performance Bond.

C. PAYMENT BOND

Through the Payment Bond the Surety's obligation to the Owner shall be to guarantee that the Contractor and its Subcontractors shall promptly make payment to all persons supplying labor, materials, or supplies for, or in, the prosecution of the Work, including the payment of reasonable attorneys fees incurred by successful claimants or plaintiffs in civil actions on the Bond. Any person or entity indicating that they have a claim of nonpayment under the Bond shall, upon written request, be promptly furnished a certified copy of the Bond and Construction Contract by the Contractor, Architect, Owner, or Alabama Building Commission, whomever is recipient of the request.

D. CHANGE ORDERS

The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. All Contract Change Orders involving an increase in the Contract Sum will require consent of Surety by endorsement of the Contract Change Order form. The Surety waives notification of any Contract Change Orders involving only extension of the Contract Time.

E. EXPIRATION

The obligations of the Contractor's performance bond surety shall be coextensive with the contractor's performance obligations under the Contract Documents; provided, however, that the surety's obligation shall expire at the end of the one-year warranty period(s) of Article 35.

ARTICLE 39
ASSIGNMENT

The Contractor shall not assign the Contract or sublet it as a whole nor assign any moneys due or to become due to the Contractor thereunder without the previous written consent of the Owner (and of the Surety, in the case of a bonded Construction Contract). As prescribed by the Public Works Law, the Contract shall in no event be assigned to an unsuccessful bidder for the Contract whose bid was rejected because the bidder was not a responsible or responsive bidder.

ARTICLE 40
CONSTRUCTION by OWNER or SEPARATE CONTRACTORS

A. OWNER'S RESERVATION of RIGHT

(1) The Owner reserves the right to self-perform, or to award separate contracts for, other portions of the Project and other Project related construction and operations on the site. The contractual conditions of such separate contracts shall be substantially similar to those of this Contract, including insurance requirements and the provisions of this Article. If the Contractor considers such actions to involve delay or additional cost under this Contract, notifications and assertion of claims shall be as provided in Article 20 and Article 23.

(2) When separate contracts are awarded, the term "Contractor" in the separate Contract Documents shall mean the Contractor who executes the respective Construction Contract.

B. COORDINATION

Unless otherwise provided in the Contract Documents, the Owner shall be responsible for coordinating the activities of the Owner's forces and separate contractors with the Work of the Contractor. The Contractor shall cooperate with the Owner and separate contractors, shall participate in reviewing and comparing their construction schedules relative to that of the Contractor when directed to do so, and shall make and adhere to any revisions to the construction schedule resulting from a joint review and mutual agreement.

C. CONDITIONS APPLICABLE to WORK PERFORMED by OWNER

Unless otherwise provided in the Contract Documents, when the Owner self-performs construction or operations related to the Project, the Owner shall be subject to the same obligations to Contractor as Contractor would have to a separate contractor under the provision of this Article 40.

D. MUTUAL RESPONSIBILITY

(1) The Contractor shall reasonably accommodate the required introduction and storage of materials and equipment and performance of activities by the Owner and separate contractors and shall connect and coordinate the Contractor's Work with theirs as required by the Contract Documents.

- (2) By proceeding with an element or portion of the Work that is applied to or performed on construction by the Owner or a separate contractor, or which relies upon their operations, the Contractor accepts the condition of such construction or operations as being suitable for the Contractor's Work, except for conditions that are not reasonably discoverable by the Contractor. If the Contractor discovers any condition in such construction or operations that is not suitable for the proper performance of the Work, the Contractor shall not proceed, but shall instead promptly notify the Architect in writing of the condition discovered.
- (3) The Contractor shall reimburse the Owner for any costs incurred by a separate contractor and payable by the Owner because of acts or omissions of the Contractor. Likewise, the Owner shall be responsible to the Contractor for any costs incurred by the Contractor because of the acts or omissions of a separate contractor.
- (4) The Contractor shall not cut or otherwise alter construction by the Owner or a separate contractor without the written consent of the Owner and separate contractor; such consent shall not be unreasonably withheld. Likewise, the Contractor shall not unreasonably withhold its consent allowing the Owner or a separate contractor to cut or otherwise alter the Work.
- (5) The Contractor shall promptly remedy any damage caused by the Contractor to the construction or property of the Owner or separate contractors.

ARTICLE 41 **SUBCONTRACTS**

A. AWARD of SUBCONTRACTS and OTHER CONTRACTS for PORTIONS of the WORK

- (1) Unless otherwise provided in the Contract Documents, when delivering the executed Construction Contract, bonds, and evidence of insurance to the Architect, the Contractor shall also submit a listing of Subcontractors proposed for each principal portion of the Work and fabricators or suppliers proposed for furnishing materials or equipment fabricated to the design of the Contract Documents. This listing shall be in addition to any naming of Subcontractors, fabricators, or suppliers that may have been required in the bid process. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner, after due investigation, has reasonable objection to any Subcontractor, fabricator, or supplier proposed by the Contractor. The issuance of the Notice to Proceed in the absence of such objection by the Owner shall constitute notice that no reasonable objection to them is made.
- (2) The Contractor shall not contract with a proposed Subcontractor, fabricator, or supplier to whom the Owner has made reasonable and timely objection. Except in accordance with prequalification procedures as may be contained in the Contract Documents, through specified qualifications, or on the grounds of reasonable objection, the Owner may not restrict the Contractor's selection of Subcontractors, fabricators, or suppliers.
- (3) Upon the Owner's reasonable objection to a proposed Subcontractor, fabricator, or supplier, the Contractor shall promptly propose another to whom the Owner has no reasonable objection. If the proposed Subcontractor, fabricator, or supplier to whom the Owner made reasonable objection was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be equitably adjusted by Contract Change Order for any resulting difference if the Contractor has acted promptly and responsively in this procedure.

(4) The Contractor shall not change previously selected Subcontractors, fabricators, or suppliers without notifying the Architect and Owner in writing of proposed substitute Subcontractors, fabricators, or suppliers. If the Owner does not make a reasonable objection to a proposed substitute within three working days, the substitute shall be deemed approved.

B. SUBCONTRACTUAL RELATIONS

(1) The Contractor agrees to bind every Subcontractor and material supplier (and require every Subcontractor to so bind its subcontractors and material suppliers) to all the provisions of the Contract Documents as they apply to the Subcontractor's and material supplier's portion of the Work.

(2) Nothing contained in the Contract Documents shall be construed as creating any contractual relationship between any Subcontractor and the Owner, nor to create a duty of the Architect, Owner, or Director to resolve disputes between or among the Contractor or its Subcontractors and suppliers or any other duty to such Subcontractors or suppliers.

ARTICLE 42

ARCHITECT'S STATUS

- A. The Architect is an independent contractor performing, with respect to this Contract, pursuant to an agreement executed between the Owner and the Architect. The Architect has prepared the Drawings and Specifications and assembled the Contract Document and is, therefore, charged with their interpretation and clarification as described in the Contract Documents. As a representative of the Owner, the Architect will endeavor to guard the Owner against variances from the requirements of the Contract Documents by the Contractor. On behalf of the Owner, the Architect will administer the Contract as described in the Contract Documents during construction and the Contractor's one-year warranty.
- B. So as to maintain continuity in administration of the Contract and performance of the Work, and to facilitate complete documentation of the project record, all communications between the Contractor and Owner regarding matters of or related to the Contract shall be directed through the Architect, unless direct communication is otherwise required to provide a legal notification. Unless otherwise authorized by the Architect, communications by and with the Architect's consultants shall be through the Architect. Unless otherwise authorized by the Contractor, communications by and with Subcontractors and material suppliers shall be through the Contractor.

C. ARCHITECT'S AUTHORITY

Subject to other provisions of the Contract Documents, the following summarizes some of the authority vested in the Architect by the Owner with respect to the Construction Contract and as further described or conditioned in other Articles of these General Conditions of the Contract.

(1) The Architect is authorized to:

- (a) approve "minor" deviations as defined in Article 9, Submittals,
- (b) make "minor" changes in the Work as defined in Article 19, Changes in the Work,
- (c) reject or require the correction of Defective Work,
- (d) require the Contractor to stop the performance of Defective Work,
- (e) adjust an Application for Payment by the Contractor pursuant to Article 30, Certification and Approval of payments, and

(f) issue Notices to Cure pursuant to Article 27.

(2) The Architect is not authorized to:

- (a) revoke, alter, relax, or waive any requirements of the Contract Documents (other than "minor" deviations and changes) without concurrence of the Owner,
- (b) finally approve or accept any portion of the Work without concurrence of the Owner,
- (c) issue instructions contrary to the Contract Documents,
- (d) issue Notice of Termination or otherwise terminate the Contract, or
- (e) require the Contractor to stop the Work except only to avoid the performance of Defective Work.

D. LIMITATIONS of RESPONSIBILITIES

(1) The Architect shall not be responsible to Contractors or to others for supervising or coordinating the performance of the Work or for the Construction Methods or safety of the Work, unless the Contract Documents give other specific instructions concerning these matters.

(2) The Architect will not be responsible to the Contractor (nor the Owner) for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents or for acts or omissions of the Contractor, a Subcontractor, or anyone for whose acts they may be liable. However, the Architect will report to the Owner and Contractor any Defective Work recognized by the Architect.

(3) The Architect will endeavor to secure faithful performance by Owner and Contractor, and the Architect will not show partiality to either or be liable to either for results of interpretations or decisions rendered in good faith.

(4) The Contractor's remedies for additional time or expense arising out of or related to this Contract, or the breach thereof, shall be solely as provided for in the Contract Documents. The Contractor shall have no claim or cause of action against the Owner, Architect, or its consultants for any actions or failures to act, whether such claim may be in contract, tort, strict liability, or otherwise, it being the agreement of the parties that the Contractor shall make no claim against the Owner or any agents of the Owner, including the Architect or its consultants, except as may be provided for claims or disputes submitted in accordance with Article 24. The Architect and Architect's consultants shall be considered third party beneficiaries of this provision of the Contract and entitled to enforce same.

E. ARCHITECT'S DECISIONS

Decisions by the Architect shall be in writing. The Architect's decisions on matters relating to aesthetic effect will be final and binding if consistent with the intent expressed in the Contract Documents. The Architect's decisions regarding disputes arising between the Contractor and Owner shall be advisory.

ARTICLE 43
CASH ALLOWANCES

A. All allowances stated in the Contract Documents shall be included in the Contract Sum. Items covered by allowances shall be supplied by the Contractor as directed by the Architect or Owner

and the Contractor shall afford the Owner the economy of obtaining competitive pricing from responsible bidders for allowance items unless other purchasing procedures are specified in the Contract Documents.

- B.** Unless otherwise provided in the Contract Documents:
- (1) allowances shall cover the cost to the Contractor of materials and equipment delivered to the Project site and all applicable taxes, less applicable trade discounts;
 - (2) the Contractor's costs for unloading, storing, protecting, and handling at the site, labor, installation, overhead, profit and other expenses related to materials or equipment covered by an allowance shall be included in the Contract Sum but not in the allowances;
 - (3) if required, the Contract Sum shall be adjusted by Change Order to reflect the actual costs of an allowance.
- C.** Any selections of materials or equipment required of the Architect or Owner under an allowance shall be made in sufficient time to avoid delay of the Work.

ARTICLE 44
PERMITS, LAWS, and REGULATIONS

A. PERMITS, FEES AND NOTICES

(1) Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are customarily secured after award of the Construction Contract and which are in effect on the date of receipt of bids.

(2) The Contractor shall comply with and give notices required by all laws, ordinances, rules, regulations, and lawful orders of public authorities applicable to performance of the Work.

B. TAXES

Unless stated otherwise in the Contract Documents, materials incorporated into the Work are exempt from sales and use tax pursuant to Section 40-9-33, Code of Alabama, 1975 as amended. The Contractor and its subcontractors shall be responsible for complying with rules and regulations of the Sales, Use, & Business Tax Division of the Alabama Department of Revenue regarding certificates and other qualifications necessary to claim such exemption when making qualifying purchases from vendors. The Contractor shall pay all applicable taxes that are not covered by the exemption of Section 40-9-33 and which are imposed as of the date of receipt of bids, including those imposed as of the date of receipt of bids but scheduled to go into effect after that date.

C. COMPENSATION for INCREASES

The Contractor shall be compensated for additional costs incurred because of increases in tax rates imposed after the date of receipt of bids.

ARTICLE 45
ROYALTIES, PATENTS, and COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend, indemnify and hold harmless the Owner, Architect, Architect's consultants, Alabama Building Commission, State Department of Education (if applicable), and their agents, employees, and consultants from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of, related to, or resulting from all suits or claims for infringement of any patent rights or copyrights arising out of the inclusion of any patented or copyrighted materials, methods, or systems selected by the Contractor and used during the execution of or incorporated into the Work. This indemnification does not apply to any suits or claims of infringement of any patent rights or copyrights arising out of any patented or copyrighted materials, methods, or systems specified in the Contract Documents. However, if the Contractor has information that a specified material, method, or system is or may constitute an infringement of a patent or copyright, the Contractor shall be responsible for any resulting loss unless such information is promptly furnished to the Architect.

ARTICLE 46
USE of the SITE

- A. The Contractor shall confine its operations at the Project site to areas permitted by the Owner and by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials, equipment, employees' vehicles, or debris. The Contractor's operations at the site shall be restricted to the sole purpose of constructing the Work, use of the site as a staging, assembly, or storage area for other business which the Contractor may undertake shall not be permitted.
- B. Unless otherwise provided in the Contract Documents, temporary facilities, such as storage sheds, shops, and offices may be erected on the Project site with the approval of the Architect and Owner. Such temporary buildings and/or utilities shall remain the property of the Contractor, and be removed at the Contractor's expense upon completion of the Work, unless the Owner authorizes their abandonment without removal.

ARTICLE 47
CUTTING and PATCHING

- A. The Contractor shall be responsible for all cutting, fitting, or patching that may be required to execute the Work to the results indicated in the Contract Documents or to make its parts fit together properly.
- B. Any cutting, patching, or excavation by the Contractor shall be supervised and performed in a manner that will not endanger persons nor damage or endanger the Work or any fully or partially completed construction of the Owner or separate contractors.

ARTICLE 48
IN-PROGRESS and FINAL CLEANUP

A. IN-PROGRESS CLEAN-UP

- (1) The Contractor shall at all times during the progress of the Work keep the premises and

surrounding area free from rubbish, scrap materials and debris resulting from the Work. Trash and combustible materials shall not be allowed to accumulate inside buildings or elsewhere on the premises. At no time shall any rubbish be thrown from window openings. Burning of trash and debris on site is not permitted.

(2) The Contractor shall make provisions to minimize and confine dust and debris resulting from construction activities.

B. FINAL CLEAN-UP

(1) Before Substantial Completion or Final Acceptance is achieved, the Contractor shall have removed from the Owner's property all construction equipment, tools, and machinery; temporary structures and/or utilities including the foundations thereof (except such as the Owner permits in writing to remain); rubbish, debris, and waste materials; and all surplus materials, leaving the site clean and true to line and grade, and the Work in a safe and clean condition, ready for use and operation.

(2) In addition to the above, and unless otherwise provided in the Contract Documents, the Contractor shall be responsible for the following special cleaning for all trades as the Work is completed:

(a) **Cleaning of all painted, enameled, stained, or baked enamel work:** Removal of all marks, stains, finger prints and splatters from such surfaces.

(b) **Cleaning of all glass:** Cleaning and removing of all stickers, labels, stains, and paint from all glass, and the washing and polishing of same on interior and exterior.

(c) **Cleaning or polishing of all hardware:** Cleaning and polishing of all hardware.

(d) **Cleaning all tile, floor finish of all kinds:** Removal of all splatters, stains, paint, dirt, and dust, the washing and polishing of all floors as recommended by the manufacturer or required by the Architect.

(e) **Cleaning of all manufactured articles, materials, fixtures, appliances, and equipment:** Removal of all stickers, rust stains, labels, and temporary covers, and cleaning and conditioning of all manufactured articles, material, fixtures, appliances, and electrical, heating, and air conditioning equipment as recommended or directed by the manufacturers, unless otherwise required by the Architect; blowing out or flushing out of all foreign matter from all equipment, piping, tanks, pumps, fans, motors, devices, switches, panels, fixtures, boilers, sanitizing potable water systems; and freeing identification plates on all equipment of excess paint and the polishing thereof.

C. OWNER'S RIGHT to CLEAN-UP

If the Contractor fails to comply with these clean-up requirements and then fails to comply with a written directive by the Architect to clean-up the premises within a specified time, the Architect or Owner may implement appropriate clean-up measures and the cost thereof shall be deducted from any amounts due or to become due the Contractor.

ARTICLE 49 LIQUIDATED DAMAGES

A. Time is the essence of the Contract. Any delay in the completion of the Work required by the

Contract Documents may cause inconvenience to the public and loss and damage to the Owner including but not limited to interest and additional administrative, architectural, inspection and supervision charges. By executing the Construction Contract, the Contractor agrees that the Contract Time is sufficient for the achievement of Substantial Completion.

- B.** The Contract Documents may provide in the Construction Contract or elsewhere for a certain dollar amount for which the Contractor and its Surety (if any) will be liable to the Owner as liquidated damages for each calendar day after expiration of the Contract Time that the Contractor fails to achieve Substantial Completion of the Work. If such daily liquidated damages are provided for, Owner and Contractor, and its Surety, agree that such amount is reasonable and agree to be bound thereby.
- C.** If a daily liquidated damage amount is not otherwise provided for in the Contract Documents, a time charge equal to six percent interest per annum on the total Contract Sum may be made against the Contractor for the entire period after expiration of the Contract Time that the Contractor fails to achieve Substantial Completion of the Work.
- D.** The amount of liquidated damages due under either paragraph B or C, above, may be deducted by the Owner from the moneys otherwise due the Contractor in the Final Payment, not as a penalty, but as liquidated damages sustained, or the amount may be recovered from Contractor or its Surety. If part of the Work is substantially completed within the Contract Time and part is not, the stated charge for liquidated damages shall be equitably prorated to that portion of the Work that the Contractor fails to substantially complete within the Contract Time. It is mutually understood and agreed between the parties hereto that such amount is reasonable as liquidated damages.

ARTICLE 50 **USE of FOREIGN MATERIALS**

- A.** In the performance of the Work the Contractor agrees to use materials, supplies, and products manufactured, mined, processed or otherwise produced in the United States or its territories, if same are available at reasonable and competitive prices and are not contrary to any sole source specification implemented under the Public Works Law.
- B.** In the performance of the Work the Contractor agrees to use steel produced in the United States if the Contract Documents require the use of steel and do not limit its supply to a sole source pursuant to the Public Works Law. If the Owner decides that the procurement of domestic steel products becomes impractical as a result of national emergency, national strike, or other cause, the Owner shall waive this restriction.
- C.** If domestic steel or other domestic materials, supplies, and products are not used in accordance with preceding Paragraphs A and B, the Contract Sum shall be reduced by an amount equal to any savings or benefits realized by the Contractor.
- D.** This Article applies only to Public Works projects financed entirely by the State of Alabama or any political subdivision of the state.

ARTICLE 51

PROJECT SIGN

(Not required for locally-funded SDE projects.)

If the Contract Sum (as awarded) is \$100,000.00 or more, the Contractor shall furnish and erect a project sign as shown in "Detail of Project Sign" (ABC Form C-15) bound in the Project Manual. The project sign shall be erected in a prominent location selected by the Architect and Owner and shall be maintained in good condition until completion of Work. If the Contract involves Work on multiple sites, only one sign is required, which shall be erected on one of the sites in a location selected by the Architect and Owner.

END of
GENERAL CONDITIONS of the CONTRACT

SUPPLEMENT
to the
GENERAL CONDITIONS of the CONTRACT

1. Article 19 "Changes in the Work", Paragraph B (1) is modified as follows:

(1) **Lump Sum.** By mutual agreement to a lump sum based on or negotiated from an itemized cost proposal from the Contractor. Additions to the Contract Sum shall include the Contractor's direct costs plus a maximum 15% markup for overhead and profit. Where subcontract work is involved the total mark-up for the Contractor and a Subcontractor shall not exceed 25%. ~~No allowance for overhead and profit shall be figured on a change which involves a net credit to the Owner.~~ **Changes which involve a net credit to the Owner shall include credits for overhead and profit on the deducted work. Changes involving a net credit that do not include overhead and profit shall be justified by the Architect, approved by the Owner, and must also be approved by the Director.** For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change, such as the cost of bonds, superintendent and other job office personnel, watchman, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

2. Article 19 "Changes in the Work", Paragraph B (3) (f) is modified as follows:

(3) **Force Account.** By directing the Contractor to proceed with the change in the Work on a "force account" basis under which the Contractor shall be reimbursed for reasonable expenditures incurred by the Contractor and its Subcontractors in performing added Work and the Owner shall receive reasonable credit for any deleted Work. The Contractor shall keep and present, in such form as the Owner may prescribe, an itemized accounting of the cost of the change together with sufficient supporting data. Unless otherwise stated in the directive, the adjustment of the Contract Sum shall be limited to the following:

- (a) costs of labor and supervision, including employee benefits, social security, retirement, unemployment and workers' compensation insurance required by law, agreement, or under Contractor's or Subcontractor's standard personnel policy;
- (b) cost of materials, supplies and equipment, including cost of delivery, whether incorporated or consumed;
- (c) rental cost of machinery and equipment, not to exceed prevailing local rates if contractor-owned;
- (d) costs of premiums for insurance required by the Contract Documents, permit fees, and sales, use or similar taxes related to the change in the Work;
- (e) reasonable credits to the Owner for the value of deleted Work, without Contractor or Subcontractor mark-ups; and
- (f) for additions to the Contract Sum, mark-up of the Contractor's direct costs for overhead and profit not exceeding 15% on Contractor's work nor exceeding 25% for Contractor and Subcontractor on a Subcontractor's work. ~~No allowance for overhead and profit shall be figured on a change which involves a net credit to the Owner.~~ **Changes which involve a net credit to the Owner shall include credits for overhead and profit on the deducted work. Changes involving a net credit that do not include overhead and profit shall be justified by the Architect, approved by**

the Owner, and must also be approved by the Director. For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change, such as the cost of insurance other than mentioned above, bonds, superintendent and other job office personnel, watchman, use and rental of small tools, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

END of SUPPLEMENT to the
GENERAL CONDITIONS of the CONTRACT

ATTACHMENT B
to the
GENERAL CONDITIONS of the CONTRACT

(MANDATORY FOR PROJECTS COVERED THROUGH
THE STATE INSURANCE FUND (SIF))

1. Article 37 "Contractor's and Subcontractors' Insurance", Paragraph E is modified as follows:

E. WAIVERS of SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors performing construction or operations related to the Project, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss. But said waiver shall apply only to the extent the loss or damage is covered by builder's risk insurance or other property insurance applicable to the Work or to other property located within or adjacent to the Project, except such rights as they may have to proceeds of such insurance held by the Owner or Contractor as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors, if any, and the subcontractor, sub-subcontractors, suppliers, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The Policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to the person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged. The waivers provided for in this paragraph shall survive not be applicable to loss or damage that occurs after final acceptance of the Work. ~~and continue to apply to insured losses to the Work or other property on or adjacent to the Project.~~

END of ATTACHMENT B to the
GENERAL CONDITIONS of the CONTRACT

SUPPLEMENTARY CONDITIONS OF THE CONTRACT

PART 1 GENERAL

1.01 PURPOSE

- A. The changes, deletions and omissions to ABC Form C-8, General Conditions of the Contract, relate to the limited contract period of the project.
 - 1. Article 29 - Schedule of Values: Add Article 29 in "Appendix B" attached hereto.
 - 2. Article 44 - Permits, Laws, and Regulations,
 - a. Paragraph A - Permits, Fees, and Notices - The General Contractor is not required to secure and pay for a building permit from the local inspection department.
 - b. Paragraph A – Add subparagraph (1) (a) to read as follows, "Public Works Projects Bidding After October 1, 2014, the General Contractor shall secure and pay for building permit fee required under Administrative Rule 170X-8 of The Alabama Building Commission. See Section 00 50 00 for the Permit Fee Calculation Worksheet."
 - 3. Article 49 - Liquidated Damages: Delete in their entirety. Insert Article 49 in "Appendix A" attached hereto.
 - 4. See Supplement A to the General Conditions of the Contract attached hereto.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SUPPLEMENT A
TO THE
GENERAL CONDITIONS OF THE CONTRACT**

1. Funding on this Project is from local source(s) and contains no Federal, PSCA or other governing conditions. Documents for this Project will not be provided to or reviewed by the State of Alabama Building Commission. Therefore, all references to "the Director" or "State of Alabama Building Commission" shall be modified to read "The Owner" or "The University of Alabama in Huntsville".

2. ARTICLE 11 - "AS-BUILT" DOCUMENTS, Paragraph A is modified as follows:

Unless otherwise provided in the Contract Documents, the Contractor shall deliver two (2) sets of "As-Built" documents, as described herein, to the Architect for submission to the Owner upon completion of the Work. Each set of "As-Built" documents shall consist of a copy of the Drawings, Addenda, Change Orders, supplemental drawings, clarifications, field changes, corrections, selections, actual locations of underground utilities, and other information as required herein or specified elsewhere in the Contract Documents. **In addition, a CD in PDF format (drawings are preferred in AutoCad format, latest version) shall be submitted with the following items included:**

- a. "As-Built" drawings, modified as noted.
- b. "As-Built" Specifications (Project Manual), modified as noted.
- c. Copies of all CPO's for Project.
- d. Copies of all Warranties and Guarantees for Project.
- e. Copies of all executed Change Orders, Addendums, Supplemental Instructions, RFI's, Color Schedule, and other similar documents.
- f. Copies of all items noted as "Close-out" within Project Manual.

3. ARTICLE 16 – INSPECTION OF THE WORK, Paragraph A, (4) is modified as follows:

- (4) The Contractor may be charged by the Owner for any extra cost of inspection incurred by the Owner or Architect on account of material and workmanship not being ready at the time of inspection set by the Contractor, **or as a result of extra cost of inspection resulting from Contractor's lack of quality assurance issues, or extra cost of inspection resulting from Architect / Engineer / Consultants to Architect or Engineer for follow up to generated punchlist, to ensure punchlist items have been completed, beyond the normal course of one Substantial Completion and one Final Inspection. Extra costs will be based upon hourly rates, determined from normal billing rates of A/E and/or A/E Consultants and Owner.**

4. ARTICLE 23 – DELAYS, Paragraph B, (3) is modified as follows:

- (3) within a reasonable time after giving notice of the delay, **and not exceeding 30 calendar days from end of calendar month event occurred**, the Contractor provides the Architect with sufficient data to document that the weather conditions experienced were unusually severe for the locality of the Work during the month in question. Unless otherwise provided in the Contract Documents, data documenting unusually severe weather conditions shall compare actual weather conditions to the average weather conditions for the month in question during the previous five years as recorded by the National Oceanic and Atmospheric Administration (NOAA), **National Weather Service** or similar record-keeping entities **for Project location**. **The following schedule of monthly anticipated adverse weather delays will constitute the base line for monthly weather time evaluations. The Contractor's Progress Schedule must reflect these anticipated adverse weather delays in all weather dependent activities:**

January – 11 days	February – 8 days	March – 6 days
April – 4 days	May – 4 days	June – 5 days
July – 6 days	August – 4 days	September – 4 days
October – 3 days	November – 4 days	December – 8 days

For a claim to be made due to excess adverse weather, OVERALL project work must be impacted preventing work for more than 50% or more of the Contractor's scheduled workday. For instance, if building is substantially dried in and claim is made for adverse weather, with only work being performed within the interior area of the building at the time of claim, no allowance for time would be applicable or allowed.

5. ARTICLE 24 – RESOLUTION OF CLAIMS AND DISPUTES, Paragraph E, is modified as follows:

If the Contract is funded in whole with funds provided by a ~~city or county board of education or other local government authority~~ **local source or Federal funding**, and the Contract Documents ~~do not stipulate a binding alternative dispute resolution method~~, the final resolution of Claims and Disputes which cannot be resolved by the Contractor (or its Surety) and Owner ~~may be by any legal remedy available to the parties. Alternatively, upon the written agreement of the Contractor (or its Surety) and the Owner, final Resolution of Claims and Disputes may~~ **shall be by submission to binding arbitration before a neutral arbitrator or panel of three (3) individuals to be identified by the Owner, who are either staff, Administrators, or faculty of The University of Alabama in Huntsville, and shall be named by the current President of The University of Alabama in Huntsville.** ~~or by submission to the Director in accordance with preceding Paragraph D.~~

6. ARTICLE 29 – PROGRESS PAYMENTS, Paragraph D, is modified as follows:

Unless otherwise provided in the Contract Documents, the Contractor's cost of materials and equipment to be incorporated into the Work, which are stored off the site, may also be considered in monthly Applications for Payment under the following conditions **(Contractor should note – When Contractor has an executed Agency Agreement and is acting as a Purchasing Agent of the Owner, materials and equipment which is to be incorporated into the**

Work and paid by Owner directly, eliminates any stored material as a part of Progress Payments):

7. ARTICLE 37 – CONTRACTOR’S AND SUBCONTRACTORS’ INSURANCE, Paragraph B, (4), (b) is modified as follows:

(b) Minimum Combined Primary Commercial General Liability and Commercial/Excess Umbrella Limits of:

- .1 \$5,000,000 per Occurrence **(may be reduced to \$2,000,000 per Occurrence when value of construction contract is less than \$2,000,000).**
- .2 \$5,000,000 Aggregate **(may be reduced to \$2,000,000 Aggregate when value of construction contract is less than \$2,000,000).**

8. ARTICLE 51 – PROJECT SIGN, is modified as follows:

(Not required for locally-funded ~~SDE~~ projects)

If the Contract Sum (as awarded) is ~~\$100,000 or more~~ **\$750,000 or more with local funding**, the Contractor shall furnish and erect a project sign as shown in “Detail of Project Sign” (ABC Form C-15) ~~bound in the Project Manual~~ **which can be obtained from website:**

<http://www.bc.alabama.gov/contContractDoc.htm> or may be bound within Project Manual.

The project sign shall be erected in a prominent location selected by the ~~Architect and~~ Owner and shall be maintained in good condition until completion of Work. If the Contract involves Work on multiple sites, only one sign is required, which shall be erected on one of the sites in a location selected by the Architect and Owner.

APPENDIX A

SUPPLEMENTARY CONDITIONS OF THE CONTRACT - ARTICLE 51

51. LIQUIDATED DAMAGES:

A. Refer to Section 01 10 00 for Substantial Completion Date.

B. LIQUIDATED DAMAGES:

1. A daily charge of \$3,000.00 will be made against the General Contractor for each calendar day past the established date of Substantial Completion.
2. The amount of the total charges shall be deducted by the Owner from the Final estimate and shall be retained by the Owner out of moneys otherwise due the Contractor in the Final Payment, not as a penalty, but as liquidated damages sustained, it being mutually understood and agreed between the parties hereto that such amount is reasonable as liquidated damages.

C. Liquidated damages will be processed by change order to the contract price.

END OF APPENDIX A

APPENDIX B

SUPPLEMENTARY CONDITIONS OF THE CONTRACT – ARTICLE 29

29. SCHEDULE OF VALUES:

- A. In accordance with the General Conditions of the Contract, Article 29, Paragraph B, the Contractor shall submit for approval a Schedule of Values as shown below.

No.	<i>Divisions of Work</i>
1	<i>Bonds, Insurance & Permits</i>
2	<i>General Conditions</i>
3	<i>Progress Schedule</i>
4	<i>Demolition</i>
5	<i>Struct. Steel / Misc. Metals</i>
8	<i>Rough & Finish Carpentry</i>
7	<i>Thermal & Moisture</i>
8	<i>Modified Bitumen Roofing</i>
9	<i>Painting</i>
10	<i>Specialties</i>
11	<i>Plumbing</i>
12	<i>HVAC</i>
13	<i>Electrical</i>

END OF SECTION

GENERAL CONTRACTOR'S ROOFING GUARANTEE

B. C. Project No. _____ _____

Project Name & Address	Project Owner(s) & Address The University of Alabama in Huntsville 301 Sparkman Drive Huntsville, AL 35899
------------------------	--

General Contractor's Name, Address, & Telephone Number	EFFECTIVE DATES OF GUARANTEE
	Date of Acceptance:
	Date of Expiration:

1. The General Contractor does hereby certify that the roofing work included in this contract was installed in strict accordance with all requirements of the plans and specifications and in accordance with approved roofing manufacturers recommendations.
2. The General Contractor does hereby guarantee the roofing and associated work including but not limited to all flashing and counter flashing both composition and metal, roof decking and/or sheathing; all materials used as a roof substrate or insulation over which roof is applied; promenade decks or any other work on the surface of the roof; metal work; gravel stops and roof expansion joints to be absolutely watertight and free from all leaks, due to faulty or defective materials and workmanship for a period of five (5) years, starting on the date of substantial completion of the project. This guarantee does not include liability for damage to interior contents of building due to roof leaks, nor does it extend to any deficiency which was caused by the failure of work which the general contractor did not damage or did not accomplish or was not charged to accomplish.
3. Subject to the terms and conditions listed below, the General Contractor also guarantees that during the Guarantee Period he will, at his own cost and expense, make or cause to be made such repairs to, or replacements of said work, in accordance with the roofing manufacturers standards as are necessary to correct faulty and defective work and/or materials which may develop in the work including, but not limited to: blisters, delamination, exposed felts, ridges, wrinkles, splits, warped insulation and/or loose flashings, etc. in a manner pursuant to the total anticipated life of the roofing system and the best standards applicable to the particular roof type in value and in accordance with construction documents as are necessary to maintain said work in satisfactory condition, and further, to respond on or within three (3) calendar days upon proper notification or leaks or defects by the Owner or Architect.

- A. Specifically excluded from this Guarantee are damages to the work, other parts of the building and building contents caused by: (1) lightning, windstorm, hailstorm and other unusual phenomena of the elements; and (2) fire. When the work has been damaged by any of the foregoing causes, the Guarantee shall be null and void until such damage has been repaired by the General Contractor, and until the cost and expense thereof has been paid by the Owner or by the responsible party so designated.
- B. During the Guarantee Period, if the Owner allows alteration of the work by anyone other than the General Contractor, including cutting, patching and maintenance in connection with penetrations, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alterations. If the owner engages the General Contractor to perform said alterations, the Guarantee shall not become null and void, unless the General Contractor, prior to proceeding with the said work, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the work, thereby reasonably justifying a termination of this Guarantee.
- C. Future building additions will not void this guarantee, except for that portion of the future addition that might affect the work under this contract at the point of connection of the roof areas, and any damage caused by such addition. If this contract is for roofing of an addition to an existing building, then this guarantee covers the work involved at the point of connection with the existing roof.
- D. During the Guarantee period, if the original use of the roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray cooled surface, flooded basin, or other use of service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.
- E. The Owner shall promptly notify the General Contractor of observed, known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for the General Contractor to inspect the work, and to examine the evidence of such leaks, defects or deterioration.

IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, 20 _____.

General Contractor's Authorized Signature

Typed Name and Title

APPLICATION and CERTIFICATE for PAYMENT

Attach Schedule of Values

ESTIMATE No. _____

DATE: _____

B.C. No. _____

TO OWNER:	PROJECT
FROM CONTRACTOR:	FROM CONTRACTOR:
FEIN _____	

TOTAL ORIGINAL CONTRACT	\$	
CHANGE ORDER(S) Numbers _____ through _____	\$	
TOTAL CONTRACT TO DATE	\$	

1. Work Completed to Date per attached Schedule of Values (_____ %)	\$	
2. Stored Materials: <i>(Attach list or Form ABC C - SM, Inventory of Stored Materials.)</i>	\$	
3. Total Completed Work and Stored Materials	\$	
4. Less Retainage	(\$)
5. Total Due	\$	
6. Less Total Previous Payments	(\$)
7. Balance Due This Estimate	\$	

CONTRACTOR'S CERTIFICATION

The undersigned Contractor certifies that to the best of his knowledge, information, and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by him for Work for which previous Certificates for Payments were issued and payments received from the Owner and that current payment shown herein has not yet been received.

By _____ Date _____

(Title)

Sworn and subscribed before me this _____ day of _____

L. S.

Notary Public

ARCHITECT'S CERTIFICATION

In accordance with the Contract Documents, the Architect certifies to the Owner that, to the best of the Architect's knowledge and belief, the Work has progressed to the point indicated herein, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the amount approved.

(Architect)

By _____

Date _____

APPROVALS

Approved by _____ (Owner) _____ Signature _____ Date _____

Approved by _____ _____ Signature _____ Date _____

INVENTORY OF STORED MATERIALS

Project: _____
 Contractor: _____
 For Estimate No. _____
 For Period Ending _____
 B. C. No. _____

A DESCRIPTION	B MATERIALS STORED LAST PERIOD	C PURCHASED THIS PERIOD	D TOTAL COLUMNS B + C	E MATERIALS USED THIS PERIOD	F MATERIALS PRESENTLY STORED

To be used as documentation to support value of Stored Materials reported on APPLICATION AND CERTIFICATE FOR PAYMENT.

CONTRACTOR:		DATE OF REPORT
ARCHITECT:		PROCEED DATE
		PROJECTED COMPLETION DATE
PROJECT		
B. C. No.		

WORK DIVISION	%	AMOUNT																		
1. GENERAL REQUIREMENTS																				
2. SITEWORK																				
3. CONCRETE																				
4. MASONRY																				
5. METALS																				
6. WOOD AND PLASTIC																				100%
7. THERMAL AND MOISTURE PROTECTION																				90%
8. DOORS AND WINDOWS																				80%
9. FINISHES																				70%
10. SPECIALTIES																				60%
11. EQUIPMENT																				50%
12. FURNISHINGS																				40%
13. SPECIAL CONSTRUCTION																				30%
14. CONVEYING SYSTEMS																				20%
15. MECHANICAL																				10%
16. ELECTRICAL																				0%
TOTAL ORIG. CONTRACT	100%																			
ANTICIPATED DRAW IN \$1,000																				
ACTUAL DRAW IN \$1,000																				

LEGEND: ANTICIPATED ACTIVITY ACTUAL ACTIVITY ANTICIPATED CASH FLOW ACTUAL CASH FLOW USE ADDITIONAL SHEETS IF JOB IS SCHEDULED MORE THAN 12 MONTHS

CONTRACT CHANGE ORDER

Change Order No. _____ Date _____ B.C.No. _____

TO: (Contractor)	PROJECT:
-------------------------	-----------------

TERMS: You are hereby authorized, subject to the provisions of your Contract for this project, to make the following changes thereto in accordance with your proposal(s) dated _____

FURNISH the necessary labor, materials, and equipment to (Description of work to be done or changes to be made.)

ORIGINAL CONTRACT SUM \$ _____

NET TOTAL OF PREVIOUS CHANGE ORDERS \$ _____

PREVIOUS REVISED CONTRACT SUM \$ _____

THIS CHANGE ORDER WILL INCREASE DECREASE
THE CONTRACT SUM BY \$ _____

REVISED CONTRACT SUM, INCLUDING THIS CHANGE ORDER \$ _____

EXTENSION OF TIME resulting from this Change Order _____ (Insert "None" or No. of days)

The Owner does hereby certify that this Change Order was executed in accordance with the provisions of Title 39, Code of Alabama, 1975, as amended.

CONSENT OF SURETY

CONTRACTING PARTIES

(Company) Contractor

By _____ (Attach current Power of Attorney)
RECOMMENDED Name & Title _____

By _____ Architect

The University of Alabama in Huntsville
(Awarding Authority)

By _____ Name & Title Michael S. Finnegan, AVP Facilities & Operations
By _____ Name & Title Ray M. Pinner, VP Finance & Administration

TO: **STATE OF ALABAMA**
BUILDING COMMISSION
770 Washington Avenue, Suite 444
Montgomery, AL 36130-1150
(334) 242-4082 FAX (334) 242-4182

CERTIFICATE OF SUBSTANTIAL COMPLETION

ROUTING PROCEDURES ON REVERSE SIDE

BC# _____

OWNER(S):	ARCHITECT:
CONTRACTOR:	BONDING COMPANY:
PROJECT	

Substantial Completion has been achieved for the entire Work the following portion of the Work _____

The **Date of Substantial Completion** of the Work covered by this certificate is established to be _____.

"Substantial Completion" means the designated Work is sufficiently complete, in accordance with the Contract Documents, such that the Owner may occupy or utilize the Work for its intended use without disruption or interference by the Contractor in completing or correcting any remaining unfinished Work. The Date of Substantial Completion is the date upon which all warranties for the designated Work commence, unless otherwise agreed and recorded herein.

Punch List: A _____ page list of items to be completed or corrected prior to the Owner's approval of Final Payment is attached hereto, but does not alter the Contractor's responsibility to complete or correct all Work in full compliance with the Contract Documents. The Contractor shall complete or correct all items on the attached list, ready for re-inspection for Final Acceptance, within 30 days after the above Date of Substantial Completion, unless another date is stated here: _____.

If completed or corrected within this period, warranties of these items commence on the Date of Substantial Completion, otherwise such warranties commence on the date of Final Acceptance of each item.

Only one (1) originally executed substantial completion form should be routed for signature. B.C. office will forward the original to the Owner and provide copies to all other parties.

RECOMMENDED BY:	
ARCHITECT: _____	DATE: _____
CONTRACTING PARTIES:	
CONTRACTOR _____	DATE: _____
OWNER _____	DATE: _____
_____	DATE: _____
APPROVALS:	
BUILDING COMM.INSPECTOR: _____	DATE: _____
BUILDING COMM. CHIEF INSPECTOR: _____	DATE: _____
BUILDING COMM. DIRECTOR: _____	DATE: _____

CERTIFICATE OF SUBSTANTIAL COMPLETION ROUTING PROCEDURE

Only one (1) originally executed substantial completion form should be routed for signature. B.C. office will forward the original to the owner and provide copies to all other parties.

ARCHITECT/ENGINEER: Please forward to Contractor after signature and date. Please provide Owner with local B.C. Inspector's name & home address.

CONTRACTOR: Please forward to Owner after signature and date.

OWNER: Please forward to local B.C. Inspector's home address after signature and date. You may contact B.C. office at (334) 242-4082 if B.C. Inspector's name/address is needed.

B.C. INSPECTOR: Will forward document to B.C. office for review and distribution.

NOTICE

THE EXECUTED "GENERAL CONTRACTOR'S ROOFING GUARANTEE" (ABC Form C-9) AND ANY OTHER ROOFING WARRANTY REQUIRED BY THE CONTRACT MUST ACCOMPANY THIS CERTIFICATE TO OBTAIN ABC APPROVAL.

FORM OF ADVERTISEMENT FOR COMPLETION

LEGAL NOTICE

In accordance with Chapter 1, Title 39, Code of Alabama, 1975, notice is hereby given that _____

(Contractor)

Contractor, has completed the Contract for (Construction) (Renovation) (Alteration) (Equipment) (Improvement) of _____ (Name of Project)

at _____

(Insert location data in County or City)

for the State of Alabama and the (County) (City) of _____, Owner(s), and have made request for final settlement of said Contract. All persons having any claim for labor, materials, or otherwise in connection with this project should immediately notify

(Architect)

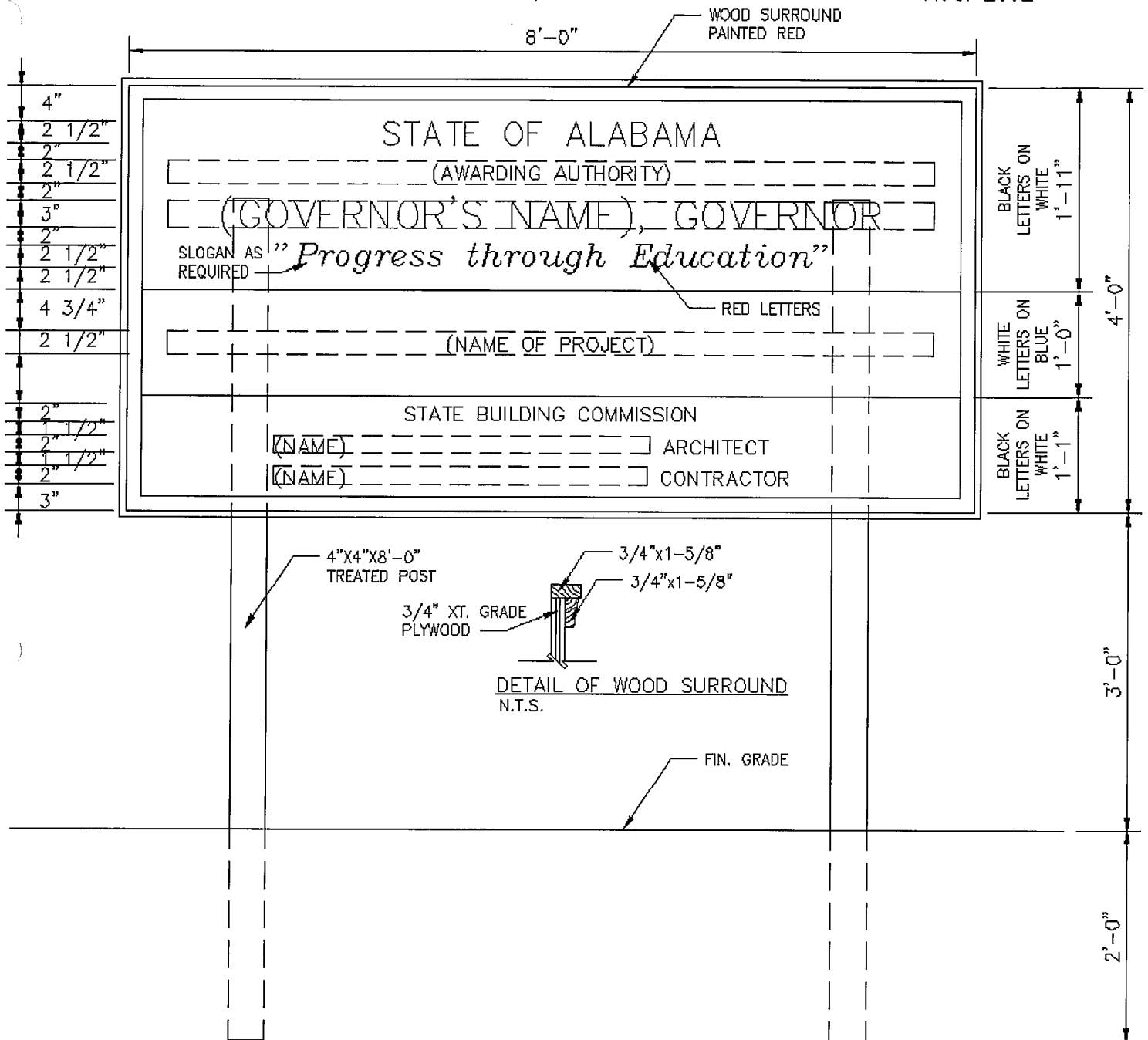
(Contractor)

(Business Address)

NOTE: This notice must be run once a week for four successive weeks for projects exceeding \$50,000.00, for projects of less than \$50,000.00, run one time only. Proof of publication is required.

DETAIL OF PROJECT SIGN
 SCALE: 3/4" = 1'-0"

ABC FORM C-15
 AUG. 2002



NOTES:

- 1.) SIGN TO BE CONSTRUCTED OF 3/4" EXTERIOR GRADE PLYWOOD.
- 2.) PAINT WITH 2 COATS BEST GRADE EXTERIOR PAINT BEFORE LETTERS ARE PAINTED.
 OPTION:
 IN LIEU OF PAINTED LETTERING ON PLYWOOD, A CORRUGATED PLASTIC SIGN (DISPLAYING THE SAME LETTERING, LAYOUT AND COLORS AS ABOVE) MAY BE SECURED DIRECTLY TO THE UNPAINTED EXT. GRADE PLYWOOD.
- 3.) SIGN SHALL BE PLACED IN A PROMINENT LOCATION AND EASILY READABLE FROM EXISTING STREET OR ROADWAY.
- 4.) SIGN SHALL BE MAINTAINED IN GOOD CONDITION UNTIL PROJECT COMPLETION.

Dept Use Only
Invoice # _____
Date Paid _____
Confirmation # _____

PERMIT FEE CALCULATION WORKSHEET

BC # _____ DATE _____

PROJECT NAME _____

OWNER _____ ARCHITECT _____

CONTRACTOR _____

AWARDED CONTRACT AMOUNT _____

Calculation of Fee:

Less than \$1,000 N/A

\$1,001 - \$50,000

Cost of Work less \$ 1,000= _____ /1,000 x \$5.00= _____ +\$15.00= _____

\$50,000 - \$100,000

Cost of Work less \$50,000= _____ /1,000 x \$4.00= _____ +\$260.00= _____

\$100,000 - \$500,000

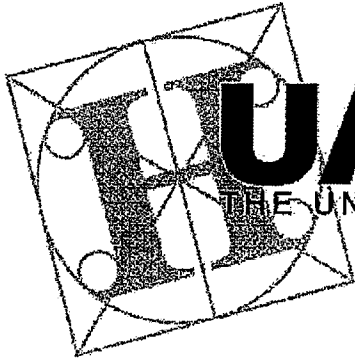
Cost of Work less \$100,000= _____ /1,000 x \$3.00= _____ +\$460.00= _____

\$500,001 and up

Cost of Work less \$500,000= _____ /1,000 x \$2.00= _____ +\$1,660.00= _____

The PERMIT FEE is to be paid before scheduling the Pre-Construction Conference. The PERMIT FEE is based on the awarded construction contract amount. A copy of the signed construction contract must be received prior to the Pre-Construction Conference.

The FINAL RECONCILIATION OF PERMIT FEE must be paid prior to the Year-End Inspection. The FINAL RECONCILIATION OF PERMIT FEE is based on the Contractor's Final Pay Application including all change orders and sales tax credits received by the Owner.



UAHuntsville

THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

DIGGING PERMIT FOR EXCAVATION

(THIS PERMIT MUST BE ON FILE AT THE FACILITIES & OPERATIONS DEPARTMENT)
Medical, Fire or other Emergencies 6911 (inside UAH phone lines) or 824-6911 (outside phone lines)

PERMIT NO: _____

CONTRACTOR NAME: _____

DATE ISSUED: _____

CONTRACTOR PHONE NUMBER: _____

VALID THROUGH: _____

1. (NAME) _____ request a permit to excavate in order to perform the operation described on line

(2) at the following location _____

_____ between the hours of _____

2. Operation to be performed: _____

3. Information: See attached sketches/drawings for location(s) of known underground utilities in affected areas.

4. Precautions: a. If the contractor uncovers or identifies any buried lines not shown, the contractor shall immediately notify the UAH Facilities and Operations Department at 824-6482 prior to proceeding.

b. No trenching machines shall be used on UAH property without prior approval by the Facilities and Operations Department at 824-6482.

c. Do not cut any underground line until it is identified by the Facilities and Operations Dept.

d. No Tie-ins or Connections are to be performed on Natural Gas lines or Propane lines within 500 feet of occupied buildings.

e. Call Before You Dig at 1-800-292-8525 for Location of Buried Public Telephone Cable, Fiber,

Electrical, Natural Gas and Water Lines. Permit # _____ Date From _____
To _____ Remark Date _____

f. Call UAH Telephone Services at 824-7551 for Location of Buried UAH Telephone Cable and/or Fiber.

g. Call UAH Information Services at 824-2624 for Location of Buried UAH Data Cable and/or Fiber.

h. Call UAH Grounds Management at 824-6482 for approval of digging location.

i. Other instructions: _____

5. Approvals: a. The undersigned has reviewed the excavation location and/or drawings and has identified known, buried utility lines(s) both public and private.

b. Available records indicate the proposed excavation area is free of toxins, buried ordinance, cemeteries and archeological sites.

APPROVED WITH COMMENTS

DISAPPROVED

APPROVED

Facilities & Operations Dept. Rep. /Ph#

Person in Charge of Excavation /Ph#

Director of Grounds Management / Ph#



State of Alabama Disclosure Statement

(Required by Act 2001-955)

ENTITY COMPLETING FORM

ADDRESS

CITY, STATE, ZIP

TELEPHONE NUMBER

()

STATE AGENCY/DEPARTMENT THAT WILL RECEIVE GOODS, SERVICES, OR IS RESPONSIBLE FOR GRANT AWARD

ADDRESS

CITY, STATE, ZIP

TELEPHONE NUMBER

()

This form is provided with:

Contract

Proposal

Request for Proposal

Invitation to Bid

Grant Proposal

Have you or any of your partners, divisions, or any related business units previously performed work or provided goods to any State Agency/Department in the current or last fiscal year?

Yes

No

If yes, identify below the State Agency/Department that received the goods or services, the type(s) of goods or services previously provided, and the amount received for the provision of such goods or services.

STATE AGENCY/DEPARTMENT	TYPE OF GOODS/SERVICES	AMOUNT RECEIVED

Have you or any of your partners, divisions, or any related business units previously applied and received any grants from any State Agency/Department in the current or last fiscal year?

Yes

No

If yes, identify the State Agency/Department that awarded the grant, the date such grant was awarded, and the amount of the grant.

STATE AGENCY/DEPARTMENT	DATE GRANT AWARDED	AMOUNT OF GRANT

1. List below the name(s) and address(es) of all public officials/public employees with whom you, members of your immediate family, or any of your employees have a family relationship and who may directly personally benefit financially from the proposed transaction. Identify the State Department/Agency for which the public officials/public employees work. (Attach additional sheets if necessary.)

NAME OF PUBLIC OFFICIAL/EMPLOYEE	ADDRESS	STATE DEPARTMENT/AGENCY

OVER

2. List below the name(s) and address(es) of all family members of public officials/public employees with whom you, members of your immediate family, or any of your employees have a family relationship and who may directly personally benefit financially from the proposed transaction. Identify the public officials/public employees and State Department/Agency for which the public officials/public employees work. (Attach additional sheets if necessary.)

NAME OF FAMILY MEMBER	ADDRESS	NAME OF PUBLIC OFFICIAL/ PUBLIC EMPLOYEE	STATE DEPARTMENT/ AGENCY WHERE EMPLOYED
-----------------------	---------	---	--

If you identified individuals in items one and/or two above, describe in detail below the direct financial benefit to be gained by the public officials, public employees, and/or their family members as the result of the contract, proposal, request for proposal, invitation to bid, or grant proposal. (Attach additional sheets if necessary.)

Describe in detail below any indirect financial benefits to be gained by any public official, public employee, and/or family members of the public official or public employee as the result of the contract, proposal, request for proposal, invitation to bid, or grant proposal. (Attach additional sheets if necessary.)

List below the name(s) and address(es) of all paid consultants and/or lobbyists utilized to obtain the contract, proposal, request for proposal, invitation to bid, or grant proposal:

NAME OF PAID CONSULTANT/LOBBYIST	ADDRESS
----------------------------------	---------

By signing below, I certify under oath and penalty of perjury that all statements on or attached to this form are true and correct to the best of my knowledge. I further understand that a civil penalty of ten percent (10%) of the amount of the transaction, not to exceed \$10,000.00, is applied for knowingly providing incorrect or misleading information.

Signature _____ Date _____

Notary's Signature _____ Date _____ Date Notary Expires _____

Act 2001-955 requires the disclosure statement to be completed and filed with all proposals, bids, contracts, or grant proposals to the State of Alabama in excess of \$5,000.

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: SWIRLL Roof Hatch
- B. Owner's Name: The University of Alabama in Huntsville.
- C. Architect's Name: Nola | VanPeurseem Architects, PC.
- D. The Project consists of adding a roof hatch to the existing Severe Weather Institute and Radar & Lightning Laboratories (SWIRLL) at of The University of Alabama in Huntsville, Huntsville, Alabama.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 50 00 - Agreement, ABC form C-5, August 2001 ed. - Construction Contract.

1.03 PRE-BID CONFERENCE

- A. A pre-bid conference shall be held at project site on Wednesday, October 10, 2018 at 10:00 A.M. CDT. All General Contractors and major Subcontractors bidding the project are requested to attend.

1.04 PERMITS

- A. No local City building permit will be required on this project.

1.05 OWNER OCCUPANCY

- A. The Owner intends to continue to occupy the building during the entire construction period.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

- A. Arrange use of site and premises to allow:
 - 1. Owner occupancy.
 - 2. Work by Owner.
- B. Provide access to and from site as required by law and by Owner:
- C. Do not unreasonable encumber site with materials or equipment.
- D. Assume full responsibility for protecting and safe-keeping of products stored on premises.
- E. Noise, Vibration, and Odors: See Section 01 70 00 - Execution and Closeout Requirements.
- F. Parking: See Section 01 50 00 - Temporary Facilities and Controls.
- G. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.

1.07 WORK SEQUENCE

- A. Coordinate construction schedule and operations with Owner.

1.08 TIME

- A. Based upon the notice to proceed being issued within 60 days of the bid, the date established for substantial completion is 4:00 p.m. local time February 1, 2019. If notice to proceed is issued after more than 60 days after the bid, the Contract period shall be extended day for day.
- B. Refer to Supplementary Conditions Section 00 50 00 for contract requirements relating to liquidated damages, and time extensions.

1.09 PROHIBITED ACTIVITIES

- A. The University of Alabama in Huntsville is a tobacco free, vapor free, campus. Any persons performing work on this project is subject to this requirement and therefore NO tobacco products, vapor products, etc. shall be used on campus. Any person found to be in violation of this policy shall be removed from the Project and barred from campus.
- B. Controlled Substances: Use of alcohol products and other controlled substances on Project site or other areas designed for Contractor's use is not permitted. Owner shall have the right to drug test personnel working on site if deemed appropriate.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum and Contract Time.
- C. Change procedures.
- D. Correlation of Contractor submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

- A. Document 00 52 00 - Agreement Form: Contract Sum, retainages, payment period, monetary values of unit prices.
- B. Document 00 50 00 - General Conditions : Additional requirements for progress payments, final payment, changes in the Work.
- C. Document 00 50 00: Retainages..

1.03 SCHEDULE OF VALUES

- A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- B. Forms filled out by hand will not be accepted.
- C. Submit a printed schedule on Form C-11 . Contractor's standard form or electronic media may also be considered.
- D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization and bonds and insurance.
- F. Include in each line item, the amount of Allowances specified in this section.
- G. Include within each line item, a direct proportional amount of Contractor's overhead and profit.
- H. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: 26th day through the 25th day of the next month.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Present required information in typewritten form.
- E. Form: ABC Form C-10, August 2001, Application and Certificate for Payment. Utilize Schedule of Values for listing items in Application and Certificate for Payment.

- F. For each item, provide a column for listing each of the following:
 - 1. Item Number.
 - 2. Description of work.
 - 3. Scheduled Values.
 - 4. Previous Applications.
 - 5. Work in Place and Stored Materials under this Application.
 - 6. Authorized Change Orders.
 - 7. Total Completed and Stored to Date of Application.
 - 8. Percentage of Completion.
 - 9. Balance to Finish.
 - 10. Retainage.
- G. Execute certification by signature of authorized officer.
- H. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.
- I. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
- J. Submit six copies of each Application for Payment.
- K. Include the following with the application:
 - 1. Transmittal letter as specified for Submittals in Section 01 30 00.
 - 2. Construction progress schedule, revised and current as specified in Section 01 30 00.
 - 3. Affidavits attesting to off-site stored products.
- L. When Architect requires substantiating information, submit data justifying dollar amounts in question.

1.05 MODIFICATION PROCEDURES

- A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.
- B. For minor changes not involving an adjustment to the Contract Price or Contract Time, Architect will issue instructions directly to Contractor.
- C. The Architect/Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract.
- D. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
 - 1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
 - 2. Promptly execute the change.
- E. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change . Contractor shall prepare and submit a fixed price quotation within 10 days.
- F. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation . Document any requested substitutions in accordance with Section 01 60 00.

- G. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
 - 1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
 - 2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.
 - 3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
 - 4. For change ordered by Architect without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.
- H. Substantiation of Costs: Provide full information required for evaluation.
 - 1. On request, provide following data:
 - a. Quantities of products, labor, and equipment.
 - b. Taxes, insurance, and bonds.
 - c. Overhead and profit.
 - d. Justification for any change in Contract Time.
 - e. Credit for deletions from Contract, similarly documented.
 - 2. Support each claim for additional costs with additional information:
 - a. Origin and date of claim.
 - b. Dates and times work was performed, and by whom.
 - c. Time records and wage rates paid.
 - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
 - 3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- I. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- J. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- K. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- L. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
 - 1. All closeout procedures specified in Section 01 70 00.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Construction progress schedule.
- D. Coordination drawings.
- E. Submittals for review, information, and project closeout.
- F. Number of copies of submittals.
- G. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 32 16 - Construction Progress Schedule: Form, content, and administration of schedules.

1.03 PROJECT COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.
- C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- E. Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion and for portions of Work designed for Owner's partial occupancy.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

- A. Architect will schedule a meeting after Notice of Award.
- B. Attendance Required:
 - 1. Owner.

2. Architect.
 3. Contractor.
 4. Major Subcontractors or Suppliers.
- C. Agenda:
1. Execution of Owner-Contractor Agreement.
 2. Submission of executed bonds and insurance certificates.
 3. Distribution of Contract Documents.
 4. Designation of personnel representing the parties to Contract, major subcontractors and Architect.
 5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 6. Scheduling.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect, as appropriate to agenda topics for each meeting.
- D. Agenda:
 1. Review minutes of previous meetings.
 2. Review of Work progress.
 3. Field observations, problems, and decisions.
 4. Identification of problems that impede, or will impede, planned progress.
 5. Review of submittals schedule and status of submittals.
 6. Review of off-site fabrication and delivery schedules.
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to Work.
- E. Record minutes and distribute copies within two days after meeting to participants, with one copy to Architect, Owner, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE - SEE SECTION 01 32 16

- A. Within 5 days after date established in Notice to Proceed, submit preliminary schedule defining planned operations.
- B. If preliminary schedule requires revision after review, submit revised schedule within 5 days.
- C. Submit updated schedule every 30 days.

3.04 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 1. Product data.

2. Shop drawings.
 3. Samples for selection.
 4. Samples for verification.
- B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

3.05 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
1. Design data.
 2. Certificates.
 3. Test reports.
 4. Inspection reports.
 5. Manufacturer's instructions.
 6. Manufacturer's field reports.
 7. Other types indicated.
 8. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner.

3.06 SUBMITTALS FOR PROJECT CLOSEOUT

- A. When the following are specified in individual sections, submit them at project closeout:
1. Project record documents.
 2. Operation and maintenance data.
 3. Warranties.
 4. Bonds.
 5. Other types as indicated.
 6. See Section 00 50 00 - Construction Documents and Forms - Supplement A to the General Conditions of the Contract for additional requirements.
- B. Submit for Owner's benefit during and after project completion.

3.07 NUMBER OF COPIES OF SUBMITTALS

- A. Documents for Review:
1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies that Contractor requires, plus three copies that will be retained by Architect.
 2. Larger Sheets, Not Larger Than 24 x 36 inches: Submit the number of opaque reproductions that Contractor requires, plus three copies that will be retained by Architect.
- B. Documents for Information: Submit two copies.
- C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.
- D. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
1. After review, produce duplicates.
 2. Retained samples will not be returned to Contractor unless specifically so stated.

3.08 SUBMITTAL PROCEDURES

- A. Shop Drawing Procedures:
 - 1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
 - 2. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.
- B. Transmit each submittal with a copy of approved submittal form.
- C. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- D. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
- E. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- F. Deliver submittals to Architect at 301 Jefferson Street, Huntsville, Alabama 35801.
- G. Schedule submittals to expedite the Project, and coordinate submission of related items.
- H. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
- I. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- J. Provide space for Contractor and Architect review stamps.
- K. When revised for resubmission, identify all changes made since previous submission.
- L. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- M. Submittals not requested will not be recognized or processed.

END OF SECTION

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preliminary schedule.
- B. Construction progress schedule, bar chart type.

1.02 RELATED SECTIONS

- A. Section 01 10 00 - Summary: Work sequence.

1.03 REFERENCES

- A. AGC (CPSM) - Construction Planning and Scheduling Manual; 2004.
- B. M-H (CPM) - CPM in Construction Management - Project Management with CPM; O'Brien; 2006.

1.04 SUBMITTALS

- A. Within 5 days after date established in Notice to Proceed, submit preliminary schedule. .
- B. If preliminary schedule requires revision after review, submit revised schedule within 5 days.
- C. Submit updated schedule every 30 days.
- D. Submit under transmittal letter form specified in Section 01 30 00.

1.05 QUALITY ASSURANCE

- A. Contractor shall designate an authorized representative to be responsible for the preparation and bi-weekly updating of the project schedule. The authorized representative shall be experienced in scheduling; have previously developed and maintained at least 5 electronic schedules for projects similar in volume and complexity to this project. Contractor shall utilize the Critical Path Method (CPM) to generate the project schedule. Primavera Suretrak, Primavera P3, Microsoft Project or similar scheduling software must be utilized throughout the entire process. Schedule must be broken down into functional work areas and trades for each area and must indicate the critical path for the project. Activities for procurement, submittals, fabrication and delivery are required in addition to construction activities. All critical Owner, Architect, or other 3rd party activities must also be included.
- B. Contractor's Administrative Personnel: five years minimum experience in using and monitoring CPM schedules on comparable projects.

1.06 SCHEDULE FORMAT

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- B. Diagram Sheet Size: Maximum 24 x 36 inches or width required.
- C. Sheet Size: Multiples of 8-1/2 x 11 inches.
- D. Scale and Spacing: To allow for notations and revisions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification section number.
- C. Identify work of separate stages and other logically grouped activities.
- D. Provide sub-schedules for each stage of Work identified in Section 01 10 00.
- E. Provide sub-schedules to define critical portions of the entire schedule.
- F. Include conferences and meetings in schedule.
- G. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- H. Coordinate content with schedule of values specified in Section 01 20 00.
- I. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

3.04 REVIEW AND EVALUATION OF SCHEDULE

- A. Participate in joint review and evaluation of schedule with Architect at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.05 UPDATING SCHEDULE

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Update diagrams to graphically depict current status of Work.
- D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- E. Indicate changes required to maintain Date of Final Completion.
- F. Submit reports required to support recommended changes.
- G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect .

3.06 DISTRIBUTION OF SCHEDULE

- A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Owner .
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. References and standards.
- B. Quality assurance submittals.
- C. Control of installation.
- D. Tolerances.
- E. Manufacturers' field services.

1.02 RELATED REQUIREMENTS

- A. Section 00 50 00 - General Conditions of the Contract: Inspections and approvals required by public authorities.
- B. Section 01 30 00 - Administrative Requirements: Submittal procedures.
- C. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor to Architect, in quantities specified for Product Data.
 - 1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.
- C. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- D. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
 - 1. Submit report within 30 days of observation to Architect for information.
 - 2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
- E. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.
 - 1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
 - 2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or Owner.

1.04 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the

- standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
 - C. Obtain copies of standards where required by product specification sections.
 - D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
 - E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
 - F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

3.03 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Architect 30 days in advance of required observations.

1. Observer subject to approval of Architect.
 2. Observer subject to approval of Owner.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.04 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary sanitary facilities.
- B. Temporary Controls: Barriers, enclosures, and fencing.
- C. Security requirements.
- D. Vehicular access and parking.
- E. Waste removal facilities and services.
- F. Project identification sign.

1.02 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
 - 1. See Section 01 10 00 - Summary for additional temporary facilities requirements.
- B. New permanent facilities located at the site may not be used during construction operations.
- C. Maintain daily in clean and sanitary condition.
- D. At end of construction, return facilities to same or better condition as originally found.

1.03 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public and to protect existing facilities and adjacent properties from damage from construction operations .
- B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.04 SECURITY

- A. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.
- B. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
 - 1. Maintain list of approved screened personnel with Owner's representative.
 - 2. Owner reserves the right to review and/or check any personnel on site for proper documentation.

1.05 VEHICULAR ACCESS AND PARKING

- A. Coordinate access and haul routes with governing authorities and Owner.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

- E. Park all construction vehicles in designated parking areas only. Vehicles parked on lawn areas or illegally parked along roadways or parking lots **WILL BE TICKETED**. Vehicles must have parking passes/stickers for parking in area parking lots and passes/stickers may be obtained from Police Department located within the Intermodal Parking Facility. Where parking lots are provided as means of contractor parking, lots shall be policed for debris and cleanliness, and parking **MUST** be restricted to areas designated.

1.06 WASTE REMOVAL

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.

1.07 PROJECT IDENTIFICATION

- A. Provide project identification sign of design and construction as required by State of Alabama Building Commission.
- B. Erect on site at location established by Architect.

1.08 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Final Application for Payment inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations and procedures.
- E. Procedures for Owner-supplied products.
- F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

- A. Section 00 10 00 - Instructions to Bidders: Product options and substitution procedures prior to bid date.
- B. Section 01 40 00 - Quality Requirements: Product quality monitoring.

1.03 REFERENCE STANDARDS

- A. NEMA MG 1 - Motors and Generators; 2014.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.
- D. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.
- B. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

2.02 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Do not use products having any of the following characteristics:
- C. Where all other criteria are met, Contractor shall give preference to products that:
 - 1. If used on interior, have lower emissions, as defined in Section 01 61 16.
 - 2. If wet-applied, have lower VOC content, as defined in Section 01 61 16.
 - 3. Have a published GreenScreen Chemical Hazard Analysis.
- D. Provide interchangeable components of the same manufacture for components being replaced.
- E. Motors: Refer to Section 22 05 13, NEMA MG 1 Type. Specific motor type is specified in individual specification sections.
- F. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Size terminal lugs to NFPA 70, include lugs for terminal box.
- G. Cord and Plug: Provide minimum 6 foot cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

2.03 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

- A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.
- B. Architect will consider requests for substitutions only within 15 days after date of Agreement.
- C. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- D. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- E. A request for substitution constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the substitution as for the specified product.

3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 5. Will reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.
- F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

3.02 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Transport and handle products in accordance with manufacturer's instructions.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

3.03 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.
- C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground.
- E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Pre-installation meetings.
- C. Cutting and patching.
- D. Surveying for laying out the work.
- E. Cleaning and protection.
- F. Starting of systems and equipment.
- G. Demonstration and instruction of Owner personnel.
- H. Closeout procedures, except payment procedures.
- I. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittals procedures.
- B. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.
- C. Section 01 50 00 - Temporary Facilities and Controls: Temporary exterior enclosures.
- D. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties .

1.03 PROJECT CONDITIONS

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
- C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner. Limited hours will be required for this work.
 - 1. Construction is to take place between the hours of 7:30 am and 10:00 pm. Owner may be open to adjusting these hours during non-academic times throughout the year.

1.04 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.

- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that demolition is complete in alterations areas and areas are ready for installation of new work.
- C. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- D. Examine and verify specific conditions described in individual specification sections.
- E. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- F. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- G. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Prepare surfaces and remove surface finishes to provide for proper installation of new work and finishes.
- B. Clean substrate surfaces prior to applying next material or substance.
- C. Seal cracks or openings of substrate prior to applying next material or substance.
- D. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Architect four days in advance of meeting date.

3.04 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
 - 1. Complete the work.
 - 2. Fit products together to integrate with other work.
 - 3. Provide openings for penetration of mechanical, electrical, and other services.
 - 4. Match work that has been cut to adjacent work.
 - 5. Repair areas adjacent to cuts to required condition.
 - 6. Repair new work damaged by subsequent work.
 - 7. Remove samples of installed work for testing when requested.
 - 8. Remove and replace defective and non-conforming work.
- C. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

- E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material , to full thickness of the penetrated element.
- J. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 - 2. Match color, texture, and appearance.
 - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.
- K. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
- L. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

3.06 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.07 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- E. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.08 FINAL CLEANING

- A. Execute final cleaning just prior to full Owner occupancy. **THE PROJECT WILL NOT BE ACCEPTED UNTIL THE SITE IS CLEANED TO THE SATISFACTION OF THE OWNER/ARCHITECT.**
 - 1. The site must be reasonably clean prior to requesting the Architect generate a punch list. The Architect shall solely determine whether the site is sufficiently clean to perform the inspection.

- B. Use cleaning materials that are nonhazardous.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean site; sweep paved areas, rake clean landscaped surfaces.
- E. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.09 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
 - 1. Provide copies to Architect.
- B. The General Contractor shall perform a preliminary inspection and shall transmit a copy of the report with each item verified as complete prior to requesting the Architect generate a punch list.
- C. Accompany Architect on punch list inspection to determine items to be listed for completion or correction.
- D. Notify Architect when work is considered ready for Substantial Completion.
- E. Submit written certification that Contract Documents have been reviewed, work has been inspected, punch list items have been completed and verified, and that work is complete in accordance with Contract Documents and ready for Architect's review.
- F. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.
- G. Accompany Architect on preliminary final inspection.
- H. Notify Architect when work is considered finally complete.
- I. Complete items of work determined by Architect's final inspection.

3.10 MAINTENANCE

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Furnish service and maintenance of components indicated in specification sections during the warranty period.
- D. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 78 00

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 00 50 00 - General Conditions of the Contract: Performance bond and labor and material payment bonds, warranty, and correction of work.
- B. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- C. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.
- D. Individual Product Sections: Specific requirements for operation and maintenance data.
- E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Submit [one] set of hardcopy revised final documents and two copies of final documents in PDF format on CD's in final form within 10 days after final inspection.
- B. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
- C. Operation and Maintenance Data:
 - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
 - 2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
- D. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.
- E. See Section 00 50 00 - Construction Documents and Forms - Supplement A to the General Conditions of the Contract for additional requirements.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish first floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

- A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
 - 1. Product data, with catalog number, size, composition, and color and texture designations.
 - 2. Information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

- C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional information as specified in individual product specification sections.
- E. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

3.04 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.
- F. Manual: Bind in commercial quality 8-1/2 by 11 inch three D side ring binders with durable plastic covers.
- G. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
- H. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- I. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

SECTION 02 41 19

MINOR DEMOLITION FOR REMODELING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal of designated building equipment and fixtures.
- B. Removal of designated construction.
- C. Disposal of materials.
- D. Identification of utilities.

1.02 RELATED SECTIONS

- A. Section 01 10 00 - Summary: Work sequence .
- B. Section 01 50 00 - Temporary Facilities and Controls: Temporary enclosures.
- C. Section 01 78 00 - Closeout Submittals: Project record documents.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate demolition; location and construction of temporary facilities.
- C. Project Record Documents: Accurately record actual locations of capped or abandoned utilities.

1.04 REGULATORY REQUIREMENTS

- A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection .
- B. Obtain required permits from authorities.
- C. Do not close or obstruct egress from any building exit or site exit.
- D. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

1.05 SEQUENCING

- A. Sequence work under the provisions of Section 01 10 00.

1.06 SCHEDULING

- A. Schedule work under the provisions of Section 01 32 16.
- B. Describe demolition removal procedures and schedule.

1.07 PROJECT CONDITIONS

- A. Conduct demolition to minimize interference with adjacent building areas.
- B. Cease operations immediately if structure appears to be in danger and notify Architect. Do not resume operations until directed.

PART 2 PRODUCTS - NOT USED.

PART 3 EXECUTION

3.01 PREPARATION

- A. Erect and maintain weatherproof closures for exterior openings.
- B. Protect existing materials that are not to be demolished.
- C. Prevent movement of structure; provide bracing and shoring.
- D. Notify affected utility companies before starting work and comply with their requirements.
- E. Mark location and termination of utilities.
- F. Provide appropriate temporary signage including signage for exit or building egress.

3.02 DEMOLITION

- A. Disconnect, remove, and identify designated utilities within demolition areas.
- B. Demolish in an orderly and careful manner. Protect existing supporting structural members .
- C. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
- D. Remove materials as demolition progresses. Upon completion of demolition, leave areas in clean condition.
- E. Remove temporary facilities.

END OF SECTION

SECTION 05 12 00

STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural steel framing members.

1.02 RELATED REQUIREMENTS

- A. Section 05 50 00 - Metal Fabrications: Steel fabrications affecting structural steel work.

1.03 REFERENCE STANDARDS

- A. AISC (MAN) - Steel Construction Manual; 2011.
- B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; 2010.
- C. AISC S348 - Specification for Structural Joints Using ASTM A325 or A490 Bolts; 2004.
- D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- E. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished; 2013.
- F. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.
- G. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- H. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014.
- I. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2014.
- J. ASTM A449 - Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use; 2010.
- K. ASTM A490 - Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength; 2014a.
- L. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
- M. ASTM A514/A514M - Standard Specification for High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding; 2014.
- N. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts; 2007a (Reapproved 2014).
- O. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2011 (Reapproved 2015).
- P. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2014.
- Q. ASTM E164 - Standard Practice for Contact Ultrasonic Testing of Weldments; 2013.

- R. ASTM E165/E165M - Standard Test Method for Liquid Penetrant Examination for General Industry; 2012.
- S. ASTM E709 - Standard Guide for Magnetic Particle Testing; 2014.
- T. ASTM F436 - Standard Specification for Hardened Steel Washers; 2011.
- U. ASTM F959 - Standard Specification for Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners; 2013.
- V. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength; 2007a.
- W. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.
- X. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015.
- Y. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; International Accreditation Service, Inc; 2011.
- Z. ITS (DIR) - Directory of Listed Products; current edition.
- AA. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 1999 (Ed. 2004).
- AB. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).
- AC. UL (FRD) - Fire Resistance Directory; current edition.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
 - 2. Connections not detailed.
 - 3. Indicate cambers.
 - 4. Indicate welded connections with AWS A2.4 welding symbols. Show size, length, and type of each weld.
 - 5. Refer to drawings for additional shop drawing requirements.
- C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

- A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."
- B. Comply with Section 10 of AISC "Code of Standard Practice for Steel Buildings and Bridges" for architecturally exposed structural steel.
- C. Maintain one copy of each document on site.
- D. Fabricator: Company specializing in performing the work of this section with minimum 10 years of documented experience.
- E. Fabricator Qualifications: A qualified steel fabricator that is accredited by the International Accreditation Service (IAS) Fabricator Inspection Program for Structural Steel (AC172).

- F. Erector: Company specializing in performing the work of this section with minimum 10 years of documented experience.
- G. Design connections not detailed on the drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in Alabama.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Steel Angles and Plates: ASTM A36/A36M.
- B. Steel W Shapes and Tees: ASTM A992/A992M.
- C. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.
- D. Steel Plate: ASTM A36, unless noted otherwise in drawings.
- E. Shear Stud Connectors: Made from ASTM A 108 Grade 1015 through 1020, headed-stud type, cold finished carbon steel; AWS D1.1 Type B.
- F. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325 (ASTM A325M), Type 1, medium carbon.
- G. Unheaded Anchor Rods: ASTM F1554, Grade 36, plain, with matching ASTM A563 or A563M nuts and ASTM F436 Type 1 washers.
- H. Headed Anchor Rods: ASTM F1554, Grade 36, plain with matching ASTM A563 or A563M nuts and ASTM F436 Type 1 washers.
- I. Welding Materials: AWS D1.1; type required for materials being welded.
- J. Grout: Non-shrink, non-metallic aggregate type, complying with 1 and capable of developing a minimum compressive strength of 7,000 psi at 28 days.
- K. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.
- L. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

- A. Shop fabricate to greatest extent possible.
- B. Fabricate connections for bolt, nut, and washer connectors.
- C. Develop required camber for members.

2.03 FINISH

- A. Shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted.

2.04 SOURCE QUALITY CONTROL

- A. Provide visual shop testing and mill analysis of structural steel.
- B. High-Strength Bolts: Provide testing and verification of shop-bolted connections in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts", testing at least 10 percent of bolts at each connection.

- C. Welded Connections: Visually inspect all shop-welded connections.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

- A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".
- B. Allow for erection loads, and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.
- C. Field weld components and shear studs indicated on shop drawings.
- D. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
- E. Do not field cut or alter structural members without approval of Architect.
- F. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.
- G. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

3.03 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

3.04 FIELD QUALITY CONTROL

- A. High-Strength Bolts: Provide testing and verification of field-bolted connections in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts", testing at least 10 percent of bolts.
- B. Welded Connections: Visually inspect all shop-welded connections.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Shop fabricated steel items.

1.02 RELATED REQUIREMENTS

- A. Section 05 12 00 - Structural Steel: Bearing plates for metal deck bearing, including anchorage.

1.03 REFERENCE STANDARDS

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- C. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2013.
- D. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014.
- E. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2014.
- F. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric); 2014.
- G. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
- H. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2014.
- I. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.
- J. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015.
- K. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 1999 (Ed. 2004).
- L. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).
- M. SSPC-SP 2 - Hand Tool Cleaning; 1982 (Ed. 2004).

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A 36/A 36M.
- B. Steel Tubing: ASTM A 500, Grade B cold-formed structural tubing.
- C. Plates: ASTM A 283.
- D. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.
- E. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1.
- F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by intermittent welds and plastic filler.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

- A. Posts and Guard Rails: As detailed; prime paint finish.
- B. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.
- C. Lintels: As detailed; prime paint finish.

2.04 FINISHES - STEEL

- A. Prime paint all steel items.
 - 1. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.

2.05 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.

- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated on shop drawings.
- D. Perform field welding in accordance with AWS D1.1/D1.1M.
- E. Obtain approval prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed.

3.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preservative treated wood materials.
- B. Wood nailers and curbs for roofing and items installed on roof.
- C. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- B. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.
- C. PS 1 - Structural Plywood; 2009.
- D. PS 20 - American Softwood Lumber Standard; 2010.
- E. SPIB (GR) - Grading Rules; 2014.

1.03 QUALITY ASSURANCE

- A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
 - 1. Lumber of other species or grades, or graded by other agencies, is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 - 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
- B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.
- E. Miscellaneous Blocking, Furring, and Nailers:

1. Lumber: S4S, No. 2 or Standard Grade.

2.03 CONSTRUCTION PANELS

- A. Other Applications:
 1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
 2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
 3. Other Locations: PS 1, C-D Plugged or better.
 4. Electrical Component Mounting: APA rated sheathing, fire retardant treated.

2.04 ACCESSORIES

- A. Fasteners and Anchors:
 1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
 2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
 3. Anchors: Toggle bolt type for anchorage to hollow masonry.

2.05 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
 1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 2. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.02 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.03 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.04 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01 74 19.

1. Comply with applicable regulations.
 2. Do not burn scrap on project site.
 3. Do not burn scraps that have been pressure treated.
 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 07 52 00

COLD-APPLIED SBS-MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. The existing Modified Bitumen roofing is to be modified to accommodate the installation of new roof accessories as indicated on the drawings and by provisions of this section, and is defined to include the following:
- B. Section Includes:
 - 1. Cold-applied roofing System.
 - 2. Insulation
- C. Related Sections include the following:
 - 1. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counter flashings.

1.03 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," before multiplication by a safety factor.
- C. Factored Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," after multiplication by a safety factor.

1.04 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Provide a roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7.
- D. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.
 - 1. Fire/Windstorm Classification: Class 1A 90.
 - 2. Hail Resistance: SH.

- E. Impact Resistance: Roof coverings installed on low-slope roofs (roof slope <2:12) shall resist impact damage based on the results of tests conducted in accordance with ASTM D 3746, ASTM D 4272, CGSB 37-GP-52M or the "Resistance to Foot Traffic Test " FM 4470.

1.05 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
 - 1. Base flashings, cants and membrane terminations.
 - 2. Crickets, saddles and tapered edge strips, including slopes.
 - 3. Base sheet fastening patterns for corner, perimeter, and field-of-roof locations.
- C. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is a Master Contractor or a Tier 1 Contractor for the past five (5) consecutive years.
- D. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" and "Quality Assurance" Articles.
 - 1. Submit evidence of meeting performance requirements.
- E. Qualification Data: For Installer and manufacturer.
- F. Maintenance Data: For roofing system to be included in maintenance manuals.
- G. Research/Evaluation Reports: For components of membrane roofing system.
- H. Warranties: Special warranties specified in this Section.
- I. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is has been a Master Contractor or Tier 1 contractor for a minimum of five years. Installer must have been in business under the same name for at least five (5) consecutive years. Contractor shall be approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's twenty (20) year warranty.
 - 1. Installer's Field Supervision: Installer is required to maintain a full-time supervisor / foreman on job site during times that modified bituminous sheet roofing work is in progress and who is experienced in installation of roofing systems similar to type and scope required for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer that has UL listing FMG approval for membrane roofing system identical to that used for this Project. Manufacturer shall have a minimum ten (10) years of successful manufacture of membrane using the same formula.
 - 1. Obtain components for roofing system from or approved by roofing system manufacturer. Provide primary products, including each type of roofing sheet, bitumen, composition flashings, and vapor barrier (if any), produced by a single manufacturer. Provide secondary products only as recommended and approved by the manufacturer of primary products for use with roofing system specified.
 - 2. Factory-Authorized Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design and extent to those indicated for this Project. Manufacturer's Sales Representative will not be accepted as a Technician.

- a. The factory-authorized technical representative is to provide a minimum three (3) inspections of field-assembled components and equipment installation. One inspection at start-up, one interim and one final. Provide report results in writing to Architect within three (3) days following each inspection.
- C. Source Limitations: Obtain components for roofing system from or approved by roofing system manufacturer. Provide primary products, including each type of roofing sheet, bitumen, composition flashings, and vapor barrier (if any), produced by a single manufacturer. Provide secondary products only as recommended by the manufacturer of primary products for use with roofing system specified.
- D. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
 2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.
- E. PRE-ROOF APPLICATION CONFERENCE: Approximately ten days prior to scheduled commencement of the modified bitumen roofing installation and associated work, meet at project site with Installer, installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of roof-top units and other work in and around roofing which must precede or follow roofing work (including mechanical work if any), Owner, Alabama Building Commission Inspector, Architect/Consultant, Roof Installer, Roof Systems Manufacturer's Representative, and other representatives directly concerned with performance of the work including (where applicable) Owner's insurers, test agencies, and governing authorities. ATTENDANCE OF THE ROOF INSTALLER'S PROJECT FOREMAN IS MANITORY.
- F. The pre-roofing conference is intended to clarify demolition (for renovation or re-roofing projects) and application requirements for work to be completed before roofing operations can begin. This would include a detailed review of the specifications, roof plans, roof deck information, flashing details, and approved shop drawings, submittal data, and samples. If conflict exists between the specifications and the Manufacturer's requirements, this shall be resolved.
- G. If this pre-roofing conference cannot be satisfactorily concluded without further inspection and investigation by any means of the parties present, it shall be reconvened at the earliest possible time to avoid delay of the work. In no case should work proceed without inspection of all roof deck areas and substantial agreement on all points.
- H. The Architect shall prepare a written report indicating actions taken and decisions made at this pre-roofing conference. This report shall be made a part of the project record and copies furnished the Contractor, the Owner.
- I. The following are to be accomplished during the conference.
 1. Review all Factory Mutual and Underwriters Laboratories requirements listed in the specifications and resolve any questions or conflicts that may arise.
 2. Establish trade-related job schedules, including the installation of roof-mounted mechanical equipment.
 3. Establish roofing schedule and work methods that will prevent roof damage.
 4. Require that all roof penetrations and walls be in place prior to installing the roof.
 5. Establish those areas on the job site that will be designed as work and storage areas for roofing operations.

6. Establish weather and working temperature conditions to which all parties must agree.
7. Establish acceptable methods of protecting the finished roof if any trades must travel across or work on or above any areas of the finished roof.
8. Review foreseeable methods and procedure related to roofing work, including but not necessarily limited to the following:
 - a. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work performed by other trades.
 - b. Review structural loading limitations of decks and inspect decks for loss of flatness and for required mechanical fastening.
 - c. Review roofing system requirements (drawings, specifications and other contract documents).
 - d. Review required submittals, both completed and yet to be completed.
 - e. Review and finalize construction schedule related to roofing work and verify availability of materials, Installer's personnel, equipment and facilities needed to make progress and avoid delays.
 - f. Review required inspection, testing, certifying and material usage accounting procedures.
 - g. Review weather and forecast' weather conditions, and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not a mandatory requirement).
 - h. Review roof application procedures, technique, details and roof specifics, e.g. review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 - i. Review job specific safety requirements, safety barriers, street blacking, haul routes, building access, site contact, facilities, security, etc.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Store and handle roofing roll goods and rigid insulation boards in a manner which will ensure that there is no possibility of significant moisture pick-up.
- E. All material must be protected from the weather by protective tarps. Manufacturer's plastic covers are not acceptable means of protection.
- F. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.08 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

- B. At the end of each days work temporary cut-offs and tie-ins shall be made weathertight, no exceptions.
- C. At the end of the days work all materials stored materials are to be recovered, tied and weighted down.

1.09 WARRANTY

- A. Existing Five-Year General Contractor's Roofing Guarantee is valid through September 1, 2019. Coordinate with contractor per attached warranty to maintain existing warranty.
- B. Existing Twenty-Year Manufacturer's Warranty is valid through September 1, 2034. Coordinate with roof manufacturer per attached warranty to maintain existing warranty.
- C. State of Alabama General Contractor's Roof Guarantee: State of Alabama standard Contractor's Roof Guarantee covering Work of this Project.
 - 1. Warranty Period: Five (5) years from date of Substantial Completion.
- D. All roof and related warranties shall be provided to the Architect/Consultant for review and approval with the Contractors request for Final Inspection to obtain Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. SBS-Modified Bituminous Membrane Roofing:
 - a. Johns Manville, Inc.
- B. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
 - 1. Products: Subject to compliance with requirements, provide one of the products specified.
 - 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.02 SBS-MODIFIED ASPHALT-SHEET MATERIALS

- A. Roofing Membrane Cap Sheet: ASTM D 6164, Grade G, Type II, polyester-reinforced 250 gram fire rated (FR) SBS-modified asphalt sheet; granular surfaced; suitable for application method specified. Manufacturers acceptable for this type membrane are Johns Manville.
 - 1. Granule Color: White.

2.03 BASE-SHEET /INTER-PLY MATERIALS

- A. Base-Sheet: ASTM D 6164, Grade S, Type I, polyester-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified. Manufacturers acceptable for this type membrane are Johns Manville. Used with cold applied adhesive.
 - 1. 1-ply application.

2.04 BASE FLASHING SHEET MATERIALS

- A. Flashing Cap Sheet: ASTM D 6221, Type I, composite polyester- and glass-fiber-reinforced, SBS-modified asphalt sheet; granular surfaced; suitable for application method specified, and as follows:
 - 1. Granule Color: White.
 - 2. 1-ply application.

- B. Glass-Fiber Fabric: Woven glass-fiber cloth, treated with asphalt, complying with ASTM D 1668, Type I.

2.05 AUXILIARY ROOFING MEMBRANE MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- B. Asphalt Primer: ASTM D 41.
- C. Cold Adhesive: ASTM D 3019 Type III and ASTM D 4479 Type I, asbestos free Roofing system manufacturer's standard asphalt-based, cold applied adhesive specially formulated for compatibility and use with modified bituminous membrane roofing and flashings.
- D. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.
- E. Mesh Roof Fabric;
 - 1. Width: 6 inches
- F. Mastic Sealant: Polyisobutylene, plain or modified bitumen, non-hardening, non-migrating, non-skinning, and non-drying.
- G. Fasteners: Factory-coated steel fasteners and metal plates, batten bars and termination bars meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing membrane components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer. Meeting or exceeding FM 1-90 uplift requirements.
 - 1. Extra Heavy Duty #15 by OMG.
- H. Nailers and Curbs: Wood nailers and curbs are specified in Section 061053 "Miscellaneous Rough Carpentry".
- I. Metal Flashing Sheet: Metal flashing sheet is specified in Division 7 Section "Sheet Metal Flashing and Trim."
- J. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained on No. 40 sieve, color to match roofing membrane.
- K. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.06 INSULATION

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
- B. Tapered Polyisocyanurate roof insulation board: 1/4" and 1/2-inch PLF tapered insulation boards are required for this project; minimum thickness as shown on drawings, polyisocyanurate insulation meeting ASTM C 1289, Type II, Class 1, Grade 2 (20 psi), felt or glass-fiber mat facer on both major surfaces. Facings to be type recommended for fully adhered or bead applied adhesive installations, where applicable. Attachment to substrate and/or insulation plies shall be attached with bead applied adhesive as per FM-I-90 requirements.
- C. Manufacturers; subject to approval by the manufacturer of primary roofing materials shall be one of the following:
 - 1. Johns Manville, Inc.

2.07 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Insulation Adhesive: Bead-applied low-rise one- or multi-component urethane adhesive formulated to attach rigid insulation to substrate and cover board to insulation and insulation to insulation.
 - 1. "OlyBond 500" by OMG.

2.08 TAPERED EDGE STRIP

- A. Tapered edge strip shall be factory fabricated wood fiber rigid roof insulation board cut on angles that slope from zero on one edge to ½-inch on the opposite edge as manufactured by Mid-State Asphalt or approved equal.

2.09 WALKWAYS

- A. Flexible Walkways: SBS Modified Bituminous sheet of contracting color to roofing sheet, heavy-duty, slip-resisting, mineral granular surface walkway rolls.

2.10 AUXILIARY MATERIALS AND ACCESSORIES

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- B. Sheet Metal Accessories: See Division 07 Section "Sheet Metal Flashing and Trim" for roof penetration flashings, flashings and counter flashings.
 - 1. Penetration Pitch Pocket Sealer: 1-part polyurethane pourable sealer designed for filling penetration pockets in conjunction with the roofing system manufacturer's recommendation.
 - 2. Pipe flashings: 4 lb sheet of common desilverized pig lead.
- C. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- D. Sheet Metal Accessories: See Division 07 Section "Sheet Metal Flashing and Trim" for roof penetration flashings, flashings and counterflashings.
 - 1. Penetration Pitch Pocket Sealer: 1-part polyurethane pourable sealer designed for filling penetration pockets in conjunction with the roofing system manufacturer's recommendation.
 - 2. Pipe flashings: 4 lb sheet of common desilverized pig lead.

PART 3 - EXECUTION

3.01 DEMOLITION, GENERAL

- A. No roofing materials will be removed or installed under adverse weather conditions. All work shall be scheduled and executed without exposing interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all reasonable risks.
- B. Only as much existing roofing shall be removed and new roofing installed as can be made weather-tight each day. This includes all flashing work.
- C. All existing roofing materials torn-off shall be immediately removed from the site to a dumping area authorized to receive such debris.

- D. Any unusual or concealed conditions discovered during the course of the work that may adversely affect the performance of the new roof system must be immediately reported to the Architect/Consultant. All work shall be halted until the Architect/Consultant has responded with a solution to the problem.
- E. Any substrate to receive new insulation, membrane or flashing shall be thoroughly dry. Existing wet materials must be removed prior to the application of the new membrane system. Should surface moisture occur on the decking, the contractor shall provide adequate equipment to dry the substrate.
- F. Temporary waterstops shall be installed at the end of each work day and if inclement weather conditions dictate during the course of day's work. These temporary waterstops shall be removed at the start of the next work day and disposed of properly. No temporary waterstops shall be made so as to obstruct water flow on the completed system (i.e. crickets, drain sumps, etc.). Polyethylene is not considered a temporary covering.

3.02 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place, set and braced.
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and nailers match thicknesses of insulation.
 - 3. Proceed with installation only after unsatisfactory conditions have been corrected

3.03 PREPARATION

- A. Clean and prepare substrate according to manufacturer's written recommendations. Provide clean, dust-free, and dry substrate for roofing application.
- B. Mask off adjoining surfaces not receiving roofing to prevent spillage from affecting other construction.
- C. Protect roof drains and other deck penetrations to prevent spillage and migration of roofing fluids.
- D. Remove grease, oil, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- E. Remove fins, ridges, and other projections and fill honeycomb, aggregate pockets, and other voids.

3.04 ROOFING MEMBRANE INSTALLATION

- A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
- B. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.
- C. On decks with a slope up to ½-inch per foot, the roofing felts and modified bitumen sheet may be installed either perpendicular or parallel to the deck incline. Roll an 18-inch wide piece of the base plys into a full coating of cold applied adhesive. The remaining base plys are to be applied full width, in the same manner. Use a hot air gun or torch on 3-inch side and 6-inch end laps. All laps must be rolled with a 3-inch rounded edge roller. A 1/8-inch to 3/8-inch bleedout of SBS compound shall be visible at the edge of all seams. All laps must be checked for good adhesion.

- D. Apply a full width piece of cap sheet into a full coating of cold applied adhesive. Subsequent sheets are to be applied in the same manner, with 4-inch side and 6-inch end laps over the preceding sheets.
- E. Prepare the 6-inch end lap by removing all loose granular. Heat and embed all remaining granular with a hot air gun or torch. Apply heat to the 4-inch side and 6-inch end lap making sure both have a good compound flow to adhere to the two surfaces. All Laps must be rolled with a 3-inch rounded edge roller. A 1/8-inch to 3/8-inch bleedout of SBS compound shall be visible at the edge of all seams. All laps must be checked for good adhesion.
- F. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 - 1. Provide tie-offs to the existing roof system at end of each day's work to cover exposed roofing membrane sheets and insulation with two course of coated felt set in roofing cement with joints and edges sealed.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
 - 3. Remove and discard temporary seals before beginning work on adjoining roofing.

3.05 BASE FLASHING INSTALLATION

- A. Install base flashing over cant strips and other sloping and vertical surfaces and secure to substrates according to roofing system manufacturer's written instructions and as follows:
 - 1. Prime substrates with asphalt primer if required by roofing system manufacturer.
 - 2. Flashing Sheet Application: Adhere flashing sheets not to exceed 5 feet in width and 12 inches high.
- B. Extend base flashing up walls or parapets a minimum of 8 inches above roofing membrane and 4 inches onto field of roofing membrane.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.

3.06 INSULATION INSTALLATION

- A. Comply with roofing system manufacturer's written instructions for installing roof insulation.
- B. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes greater than 45 degrees.

3.07 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.
- B. Test Cuts: Test specimens will be removed to evaluate problems observed during quality-assurance inspections of roofing membrane as follows:
 - 1. Approximate quantities of components within roofing membrane will be determined according to ASTM D 3617.
 - 2. Test specimens will be examined for interply voids according to ASTM D 3617 and to comply with criteria established in Appendix 3 of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
 - 3. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.
 - 4. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect/Consultant. Notify Architect/Consultant 48 hours in advance of date and time of inspection.
 - 1. Notify Architect/Consultant or Owner 48 hours in advance of date and time of inspection.
- D. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.08 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect / Consultant and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

PART 4 - EXISTING WARRANTIES AND GUARANTEE'S (ATTACHED)

4.01 EXISTING GENERAL CONTRACTOR'S 5-YEAR ROOFING GUARANTEE AND COVER LETTER.

4.02 EXISTING ROOFING MANUFACTURER'S 20-YEAR NDL WARRANTY.

END OF SECTION

FILE COPY

August 27, 2014



The University of Alabama in Huntsville
110C Physical Plant
Huntsville, AL 35899

Reference: UAH Severe Weather Institute & Radar & Lightning Laboratories
(SWIRLL)

Dear Building Owner:

Congratulations on your new roof on your facility. The enclosed manufacturer's warranty is valid for a period of 20 years. Additionally, enclosed is a warranty from All-South Subcontractors for 5 years of this same period.

We are pleased to provide you with the roof warranty for your recent project. While your roofing warranty covers your roofing membrane for a period of 20 years, there are other associated items, which are not included in that warranty (Flashing & Insulation – Per Spec) that require regular maintenance. These items include sheet metal flashings, roof drains, caulk, and other items. By maintaining your roof system you can extend the life of your investment. As an addition to your roofing warranty, All-South Subcontractors, Inc. offers an annual or bi-annual Maintenance Agreement. This agreement is set up to inspect your roof system and to repair any warranted items free of charge and to notify you of unwarranted items that are in need of maintenance. This is especially good for building owners who do not have an in-house maintenance department. Our Maintenance Agreement includes the following items:

- 1.) A seven (7) page report with pictures indicating the status of your roof system.
- 2.) Notice of repairs that need to be made free of charge under your warranty provision.
- 3.) A Breakdown of cost to repair any non-warranted items for your approval before the work is done.
- 4.) Cleaning of debris from your drainage system.

Other items can be added to our inspection if desired, but could be at additional costs.

If you are interested in obtaining a Maintenance Agreement, please contact Ms. Nina O'Rear at our office (205) 836-8111 for pricing based on your buildings specific needs.

Page 2 of 2

In the event you have a roof leak even during our installer's warranty, your enclosed manufacturer's warranty requires that you notify the manufacturer in writing. I suggest that you also notify them by phone for quickest response. This is for your protection and should become standard practice for reporting a roof leak. Once notified, the roof manufacturer will notify us or in the event the leak is beyond our contractor's warranty have the option of notifying any other approved applicator that may be closer to your location.

We hope that your new roof provides you with years of excellent service. Adhering to these suggestions will help protect your investment and extend the life of your roof.

Thank you for using All-South Subcontractors, Inc. for your roofing needs.

Sincerely,

All-South Subcontractors, Inc.



John F. Stewart
President

JFS/dcy

GENERAL CONTRACTOR'S ROOFING GUARANTEE

B. C. Project No. _____

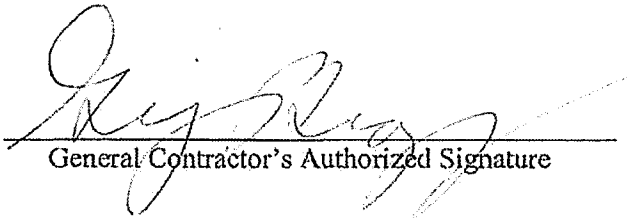
Project Name & Address University of Alabama in Huntsville Severe Weather Institute and Radar & Lightning Laboratories (SWIRLL)	Project Owner(s) & Address The University of Alabama in Huntsville 110C Physical Plant Huntsville, AL 35899
---	---

General Contractor's Name, Address, & Telephone Number Consolidated Construction Company of Alabama 908 North Memorial Parkway, Suite 2A Huntsville, AL 35801	EFFECTIVE DATES OF GUARANTEE
	Date of Acceptance: 09/01/14
	Date of Expiration: 09/01/19

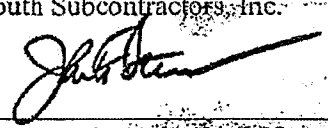
1. The General Contractor does hereby certify that the roofing work included in this contract was installed in strict accordance with all requirements of the plans and specifications and in accordance with approved roofing manufacturer's recommendations.
2. The General Contractor does hereby guarantee the roofing and associated work including but not limited to all flashing and counter flashing both composition and metal, roof decking and/or sheathing; all materials used as a roof substrate or insulation over which roof is applied; promenade decks or any other work on the surface of the roof; metal work; gravel stops and roof expansion joints to be absolutely watertight and free from all leaks, due to faulty or defective materials and workmanship for a period of five (5) years, starting on the date of substantial completion of the project. This guarantee does not include liability for damage to interior contents of building due to roof leaks, nor does it extend to any deficiency which was caused by the failure of work which the general contractor did not damage or did not accomplish or was not charged to accomplish.
3. Subject to the terms and conditions listed below, the General Contractor also guarantees that during the Guarantee Period he will, at his own cost and expense, make or cause to be made such repairs to, or replacements of said work, in accordance with the roofing manufacturers standards as are necessary to correct faulty and defective work and/or materials which may develop in the work including, but not limited to: blisters, delamination, exposed felts, ridges, wrinkles, splits, warped insulation and/or loose flashings, etc. in a manner pursuant to the total anticipated life of the roofing system and the best standards applicable to the particular roof type in value and in accordance with construction documents as are necessary to maintain said work in satisfactory condition, and further, to respond on or within three (3) calendar days upon proper notification or leaks or defects by the Owner or Architect.

- A. Specifically excluded from this Guarantee are damages to the work, other parts of the building and building contents caused by: (1) lightning, windstorm, hailstorm and other unusual phenomena of the elements; and (2) fire. When the work has been damaged by any of the foregoing causes, the Guarantee shall be null and void until such damage has been repaired by the General Contractor, and until the cost and expense thereof has been paid by the Owner or by the responsible party so designated.
- B. During the Guarantee Period, if the Owner allows alteration of the work by anyone other than the General Contractor, including cutting, patching and maintenance in connection with penetrations, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alterations. If the owner engages the General Contractor to perform said alterations, the Guarantee shall not become null and void, unless the General Contractor, prior to proceeding with the said work, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the work, thereby reasonably justifying a termination of this Guarantee.
- C. Future building additions will not void this guarantee, except for that portion of the future addition that might affect the work under this contract at the point of connection of the roof areas, and any damage caused by such addition. If this contract is for roofing of an addition to an existing building, then this guarantee covers the work involved at the point of connection with the existing roof.
- D. During the Guarantee period, if the original use of the roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray cooled surface, flooded basin, or other use of service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.
- E. The Owner shall promptly notify the General Contractor of observed, known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for the General Contractor to inspect the work, and to examine the evidence of such leaks, defects or deterioration.

IN WITNESS THEREOF, this instrument has been duly executed this 27th day of August, 2014.


General Contractor's Authorized Signature

Typed Name and Title

All-South Subcontractors, Inc.

Subcontractor's Authorized Signature

John F. Stewart, President
Typed Name and Title





Johns Manville

Peak Advantage Guarantee



Building Owner:

THE UNIVERSITY OF ALABAMA IN HUNTSVILLE
110C PHYSICAL PLANT
HUNTSVILLE, AL 35899

Building Name:

UAH SEVERE WEATHER INSTITUTE AND RADAR &
LIGHTNING LABORATORIES (SWIRLL)
4801 BRADFORD DRIVE
HUNTSVILLE, AL 35758

Guarantee Number:

ANM147235256

Expiration Date:

September 1, 2034

Job Name:

UAH SEVERE WEATHER
INSTITUTE AND RADAR &
LIGHTNING LABORATORIES
(SWIRLL)

Approved Roofing Contractor:

Date of Completion: September 1, 2014

ALL SOUTH SUBCONTRACTORS INC
2678 Queenstown Road
Birmingham, AL 35210

Terms & Maximum Monetary Obligation to Maintain a Watertight Roofing System.

Years: 20 Year

\$ No Dollar Limit

Coverage:

The components of the Roofing System covered by this Guarantee are:

Total Squares: 105

Sec.	Sqs.	Roof Type	Membrane Spec.	Insulation Type			Cover Board
				Layer 1	Layer 2	Layer 3	
1	89	SBS	2PID-CA	ENRGY 3		Securock	
2	16	SBS	2PID-CA	Tapered ENRGY3		Securock	

Accessories:	Type	Product Name	Quantity
	Expand-O-Flash (1) Style:		0 lin. ft.
	Expand-O-Flash (2) Style:		0 lin. ft.
	Expand-O-Flash (3) Style:		0 lin. ft.
	Drains (1) Style:		0 ea.
	Drains (2) Style:		0 ea.
	Vents Style:		0 ea.
	Fascia Style:		0 lin. ft.
	Copings Style:		0 lin. ft.
	Gravel Stop Style:		0 lin. ft.

These Johns Manville Guaranteed components are referred to above as the "Roofing System" and ALL OTHER COMPONENTS OF THE OWNER'S BUILDING ARE EXCLUDED FROM THE TERMS OF THIS GUARANTEE, including any amendments thereto.

Johns Manville* guarantees to the original Building Owner that during the Term commencing with the Date of Completion (as defined above), JM will pay for the materials and labor reasonably required in Johns Manville's sole and absolute discretion to repair the Roofing System to return it to a watertight condition if leaks occur due to: ordinary wear and tear, or deficiencies in any or all of the Johns Manville component materials of the Roofing System, or workmanship deficiencies only to the extent they arise solely out of the application of the Roofing System. Non-leaking blisters are specifically excluded from coverage. Should any investigation or inspection reveal the cause of a reported leak to be outside the scope of coverage under this Guarantee, then all such investigation and inspection costs shall be borne solely by the Building Owner.

WHAT TO DO IF YOUR ROOF LEAKS

If you should have a roof leak please refer to directions on the reverse side. Failure by the Building Owner to comply with any of the directions on the reverse side of this document will render the coverage provided under this Guarantee, including any applicable amendments and/or riders, null and void.

LIMITATIONS AND EXCLUSIONS

This Guarantee is not a maintenance agreement or an insurance policy; therefore, routine inspections and maintenance are the Building Owner's sole responsibility (see reverse side of this document). Failure to follow the Maintenance Program on the reverse side of this document will void the Guarantee in its entirety. This Guarantee does not obligate JM to repair or replace the Roofing System, or any part of the Roofing System, for leaks or appearance issues resulting, in whole or in part, from one or more of the following (a) natural disasters including but not limited to the direct or indirect effect of lightning, flood, hail storm, earthquake, tornados, hurricanes or other extraordinary natural occurrences and/or wind speeds in excess of 55 miles per hour; (b) misuse, abuse, neglect or negligence; (c) installation or material failures other than those involving the component materials expressly defined above as the Roofing System or exposure of the Roofing System components to damaging substances such as oil, fertilizers, or solvents or to damaging conditions such as vermin; (d) any and all (i) changes, alterations, repairs to the Roofing System, including, but not limited to, structures, penetrations, fixtures or utilities (including vegetative and solar overlays) based upon or through the Roofing System as well as any (ii) changes to the Building's usage that are not pre-approved in writing by JM; (e) failure of the Building substrate (mechanical, structural, or otherwise and whether resulting from Building movement, design defects or other causes) or improper drainage; (f) defects in or faulty/improper design, specification construction or engineering of the Building or any area over which the Roofing System is installed; (g) defects in or faulty/improper architectural, engineering or design flaws of the Roofing System or Building, including, but not limited to, design issues arising out of improper climate or building code compliance; or (h) in instances of a recover project, Johns Manville is not responsible for the performance of pre-existing materials that predated the recover. Instead, Johns Manville's sole responsibility in recover systems where JM materials are adhered to existing materials is limited to the installed recover JM Roofing materials up to the wind speed listed herein. Guarantee coverage is limited to replacing recover JM Roofing materials only (and not the pre-existing materials -- which is the Owner's responsibility) as required to return the roofing system to a watertight condition due to a claim covered under the terms and conditions herein. Johns Manville is not responsible for leaks, injuries or damages resulting from any water entry from any portion of the Building structure not a part of the Roofing System, including, but not limited to, deterioration of the roofing substrate, walls, mortar joints, HVAC units and all other non-Johns Manville materials and metal components. Moreover, the Building Owner is solely and absolutely responsible for any removal and/or replacement of any overburdens, super-strata or overlays, in any form whatsoever, as reasonably necessary to expose the Roofing System for inspection and/or repair.

This Guarantee becomes effective when (1) it is delivered to Owner; and (2) all bills for installation, materials, and services have been paid in full to the Approved Roofing contractor and to JM. Until that time, this Guarantee is not in force, has no effect -- and JM is under no obligation whatsoever to perform any services/work.

The Parties agree that any controversy or claims relating to this Guarantee shall be first submitted to mediation under the Construction Industry Arbitration and Mediation Rules of the American Arbitration Association (Regular Track Procedures) or to such other mediation arrangement as the parties mutually agree. No court or other tribunal shall have jurisdiction until the mediation is completed. In any action or proceeding brought against the Building Owner to enforce this Guarantee or to collect costs due hereunder, Johns Manville shall be entitled to recover its reasonable costs, expenses and fees (including expert witness' fees) incurred in any such action or proceeding, including, without limitation, attorneys' fees and expenses, and the Building Owner shall pay it.

TO THE FULLEST EXTENT PERMITTED BY LAW, JM DISCLAIMS ANY IMPLIED WARRANTY, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND LIMITS SUCH WARRANTY TO THE DURATION AND TO THE EXTENT OF THE EXPRESS WARRANTY CONTAINED IN THIS GUARANTEE.

THE EXCLUSIVE RESPONSIBILITY AND LIABILITY OF JM UNDER THIS GUARANTEE IS TO MAKE REPAIRS NECESSARY TO MAINTAIN THE ROOFING SYSTEM IN A WATERTIGHT CONDITION IN ACCORDANCE WITH THE OBLIGATIONS OF JM UNDER THIS GUARANTEE. JM AND ITS AFFILIATES WILL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES TO THE BUILDING STRUCTURE (UPON WHICH THE ROOFING SYSTEM IS AFFIXED) OR ITS CONTENTS AND OR OCCUPANTS, LOSS OF TIME OR PROFITS OR ANY INCONVENIENCE, INJURY. JM SHALL NOT BE LIABLE FOR ANY CLAIM MADE AGAINST THE BUILDING OWNER BY ANY THIRD PARTY AND THE BUILDING OWNER SHALL INDEMNIFY AND DEFEND JM AGAINST ANY CLAIM BROUGHT BY ANY THIRD PARTY AGAINST JM RELATING TO OR ARISING OUT OF THE ROOFING SYSTEM OR JM'S OBLIGATIONS UNDER THIS GUARANTEE. JM AND ITS AFFILIATES SHALL NOT BE LIABLE FOR ANY DAMAGES WHICH ARE BASED UPON NEGLIGENCE, BREACH OF WARRANTY, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY OTHER THAN THE EXCLUSIVE LIABILITY SET FORTH IN THIS GUARANTEE. THIS GUARANTEE DOES NOT COVER, AND EXPLICITLY EXCLUDES, ANY AND ALL INJURIES, CLAIMS AND/OR DAMAGES RESULTING, IN WHOLE OR IN PART, FROM ANY WATER ENTRY FROM ANY PORTION OF THE BUILDING STRUCTURE INCLUDING, BUT NOT LIMITED TO, THE ROOFING SYSTEM.

No one is authorized to change, alter, or modify the provision of this Guarantee other than the Manager, Guarantee Services or authorized delegate. JM's delay or failure in enforcing the terms and conditions contained in this Guarantee shall not operate as a waiver of such terms and conditions. This Guarantee is solely for the benefit of the Building Owner identified above and Building Owner's rights hereunder are not assignable. Upon sale or other transfer of the Building, Building Owner may request transfer of this Guarantee to the new owner, and JM may transfer this Guarantee, in its sole and absolute discretion only after receiving satisfactory information and payment of a transfer fee, which must be paid no later than 30 days after the date of Building ownership transfer.

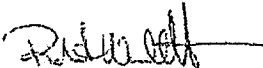
In the event JM pays for repairs which are required due to the acts or omissions of others, JM shall be subrogated to all rights of recovery of the Building Owner to the extent of the amount of the repairs.

Because JM does not practice Engineering or Architecture, neither the issuance of this Guarantee nor any review of the Building's construction or inspection of roof plans (or the Building's roof deck) by JM representatives shall constitute any warranty by JM of such plans, specifications, and construction or in any way constitute an extension of the terms and conditions of this Guarantee. Any roof inspections are solely for the benefit of JM.

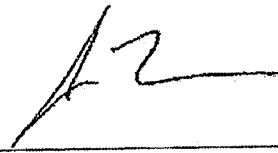
JM does not supervise nor is it responsible for a roofing contractor's work except to the extent stated herein, and roofing contractors are not agents of JM.

*JOHNS MANVILLE ("JM") is a Delaware corporation with its principal mailing address at P.O. Box 5108, Denver, Colorado 80217-5108.

This guarantee has been amended to include wind speeds up to 72 mph under the terms and conditions herein.



By: Robert Wamboldt
Title: Vice President & General Manager
Roofing Systems Group



Jim Nunns
Attorney-in-Fact

Addendum(s)

State of Alabama

This is to certify that the items listed below will be considered part of and will apply to the Johns Manville Peak Advantage Roofing System Guarantee issued for this project.

The Nineteenth Judicial Court (State of Alabama) shall have jurisdiction in the event that any action is brought under the above referenced Johns Manville Peak Advantage Guarantee. This would be in lieu of the arbitration referenced in the Guarantee.

1. Johns Manville will cover problems, under the terms and conditions of the Guarantee, due to ponding water that remains up to 48 hours.
2. This Guarantee will be in effect upon issuance by Johns Manville. Johns Manville will not void this guarantee due to non-payment to Johns Manville or the installing contractor.
3. This Guarantee covers all materials manufactured or marketed by Johns Manville Roofing Systems.
4. This Guarantee and maintenance programs have been amended to be construed under the laws of the State of Alabama.

Maintenance Program

In order to continue the coverage of this Guarantee, the following Maintenance Program must be implemented and followed:

1. Building Owner must notify JM Guarantee Services Unit (see below) immediately upon discovery of the leak and in no event later than ten (10) days after initial discovery of the leak, time being of the essence. Failure of the Building Owner to provide timely notice to JM Guarantee Services of any leak is a material ground for termination of the Guarantee.
2. In response to timely notice, JM will arrange to inspect the Roofing System, and
 - (i) If, in JM's sole and absolute opinion, the leak(s) is/are the responsibility of JM under this Guarantee (see Limitations and Exclusions), then JM will take prompt appropriate action to return the Roofing system to a watertight condition, or
 - (ii) If, in JM's sole and absolute opinion, the leak(s) is/are not the responsibility of JM under this Guarantee, then JM will advise the Building Owner within a reasonable time of the minimum repairs that JM believes are required to return the Roofing System to a watertight condition. If the Building Owner, at his expense, promptly and timely makes such repairs to the Roofing System (time being of the essence) then this Guarantee will remain in effect for the unexpired portion of its Term. Failure to make any of these repairs in a timely and reasonable fashion will void any further obligation of JM under this Guarantee as to the damaged portion of the Roofing System as well as any other areas of the Roofing System impacted by such failure.
3. In the event an emergency condition exists which requires immediate repair to avoid damage to the Building, its contents or occupants, then Building Owner may make reasonable, essential temporary repairs. JM will reimburse Building Owner for those reasonable repair expenses only to the extent such expenses would have been the responsibility of JM under the Guarantee.

There are a number of items not covered by this Guarantee that are the sole, exclusive responsibility of the Building Owner. In order to ensure that your new roof will continue to perform its function and to continue JM's obligations under the Guarantee, you must examine and maintain these items on a regular basis:

- Maintain a file for your records on this Roofing System, including, but not limited to, this Guarantee, invoices, and subsequent logs of all inspections performed and repairs that are made to the Roofing System.
- Inspect your Roofing System at least semi-annually. This is best done in the spring; after the Roofing System has been exposed to the harsh winter conditions, and, in the Fall after a long hot summer. It is also a good idea to examine the Roofing System for damage after severe weather conditions such as hailstorms, heavy rains, high winds, etc.
- Since these types of Roofing Systems typically have a low slope, they are easily examined. However, care must be taken to prevent falling and other accidents. JM expressly disclaims and assumes no liability for any inspections performed on the Roofing System.

When checking the Roofing System:

- Remove any debris such as leaves, small branches, dirt, rocks, etc. that have accumulated.
- Clean gutters, down spouts, drains and the surrounding areas. Make certain they allow water to flow off the Roofing System. Positive drainage is essential.
- Examine all metal flashings and valleys for rust and damage that may have been caused by wind or traffic on the Roofing System, and make certain they are well attached and sealed. Any damaged, loose, or poorly sealed materials must be repaired by a JM Approved Roofing Contractor only.
- Examine the areas that abut the Roofing System. Damaged masonry, poorly mounted counter flashing, loose caulking, bad mortar joints, and any loose stone or tile coping can appear to be a membrane leak. Have these items repaired by a JM Approved Roofing Contractor if found to be defective.
- Examine the edges of the Roofing System. Wind damage often occurs in these areas. Materials that have been lifted by the wind need to be corrected by a JM Approved Roofing Contractor.
- Examine any roof top equipment such as air conditioners, evaporative coolers, antennas, etc. Make certain they do not move excessively or cause a roof problem by leaking materials onto the Roofing System.
- Check the building exterior for settlement or movement. Structural movement can cause cracks and other problems which in turn may lead to leaks in your Roofing System.
- Examine protective coatings; any cracked, flaking, or blistered areas must be recoated.

Protecting your investment:

- Avoid unnecessary roof top traffic.
- If you allow equipment servicemen to go onto the Roofing System, advise them to be careful. Dropped tools, heavy equipment, etc. can damage the membrane. Log all such trips to the Roofing System.
- Do not allow service personnel to make penetrations into the Roofing System; these are to be made only by a JM Approved Roofing Contractor.

All the terms and conditions of this Guarantee shall be construed under the internal law of the state of Colorado without regard to its conflicts of law principles. Invalidity or unenforceability of any provisions herein shall not affect the validity or enforceability of any other provision which shall remain in full force and effect to the extent the main intent of the document is preserved.

This form is not to be copied or reproduced in any manner. This Guarantee is valid only in the United States of America.

Guarantee Services
(800) 922-5922
E-mail: gsu@jm.com
www.jm.com/roofing

Mailing Address:
Johns Manville
Guarantee Services
P.O. Box 625001
Littleton, CO 80162-5001

Shipping Address:
Johns Manville
Guarantee Services
10100 West Ute Avenue
Littleton, CO 80127

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Formed low-slope roof sheet metal fabrications.
 - 2. Formed roof penetration flashings.
- B. Related Requirements:
 - 1. Division 07 Section "Joint Sealers" for field-applied sealants not otherwise specified in the Section

1.03 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leak-proof, secure, and noncorrosive installation.

1.04 PRE-INSTALLATION MEETINGS

- A. Pre-installation Meeting: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination". Approximately ten days prior to scheduled commencement of the roofing installation and associated work, meet at project site with Roofing Installer, Sheet Metal Installer, and of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of roof-top units and other work in and around roofing which must precede or follow roofing work (including mechanical work if any), Owner, Alabama State Building Commission Inspector, Architect/Consultant, Roof Systems Manufacturer's Representative, and other representatives directly concerned with performance of the work including (where applicable) Owner's insurers, test agencies, and governing authorities. **ATTENDANCE OF THE ROOF INSTALLER'S PROJECT FOREMAN IS MANITORY.**
 - 1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
 - 3. Review requirements for insurance and certificates if applicable.
 - 4. Review sheet metal flashing observation and repair procedures after flashing installation.
 - 5. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
 - 6. Document proceeding, including corrective measures and actions required, and furnish copy of record to each participant.

1.05 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

- B. Shop Drawings: For sheet metal flashing and trim.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details.
 - 3. Include identification of material, thickness, weight, and finish for each item and location in Project.
 - 4. Include details for forming, including profiles, shapes, seams, and dimensions.
 - 5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 - 6. Include details of termination points and assemblies.
 - 7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
 - 8. Include details of roof-penetration flashing.
 - 9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counter-flashings as applicable.
 - 10. Include details of special conditions.
 - 11. Include details of connections to adjoining work.
 - 12. Detail formed flashing and trim at scale of not less than 1½-inches per 12-inches.
- C. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.
- D. Samples for Verification: For each type of exposed finish.
 - 1. Sheet Metal Flashing: 12-inches (300-mm) long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
 - 2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12-inches (300-mm) long and in required profile. Include fasteners and other exposed accessories.
 - 3. Unit-Type Accessories and Miscellaneous Materials: Full-size Sample.

1.06 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.
- B. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- C. Sample Warranty: For special warranty.

1.07 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

1.08 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employ skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.
- B. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

- C. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.10 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 659-74.
 - c. Cracking, checking, peeling, or failure of paint to adhere to the bare substrate.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. FM Approvals Listing: Manufacture and install copings and roof edge flashings that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-90. Identify materials with name of fabricator and design approved by FM Approvals.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.02 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Aluminum-Zinc alloy-coated steel sheet (Galvalume); produced according to ASTM Specification A792/A792M-97a "Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by Hot-Dip Process." Structural quality, AZ50 or 0.50 oz/sq. ft. (150 g/sq. m.) architectural Galvalume. Colors shall consist of 70% PVDF Kynar/Hylar. Manufacturer shall offer colors that provide reflectivity and emissivity standards, in accordance with Energy Star Ratings, DOE and LEED criteria. Colors shall provide for an SRI rating of minimum 29 @ slopes of 2:12 or greater. All colors shall be identified as LEED qualified and "COOL" colors to meet Energy Star compliance, 24 gauge.
 - 1. Color: As selected by Architect/Consultant from manufacturer's full range.
- C. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304, dead soft, fully annealed; with smooth, flat surface, 0.015-inch thickness or as indicated.
 - 1. Finish: 2D dull, cold rolled.

2.03 ELASTOMERIC UNLAYMENT/SEPARATION SHEET

- A. W R Grace "Ice & Water Shield Vycor", or approved equal.

2.04 POLYVINYL CHLORIDE UNLAYMENT/SEPARATION SHEET

- A. Nervastral 300, by Nervastral, Inc.; Greenwich, CT or approved equal.

2.05 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
 - 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
 - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 - 2. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
 - 3. Fasteners for Zinc-Coated (Galvanized) Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless.
 - 4. Fasteners for attachment of wood nailers and blocking: Series 300 Stainless steel screws.
- C. Solder:
 - 1. For Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
- D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, non-staining tape ½-inch (13-mm) wide and 1/8-inch (3 mm) thick.
- E. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

2.06 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
 - 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 - 2. Obtain field measurements for accurate fit before shop fabrication.
 - 3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.

4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of ¼-inch in 20-feet (6-mm in 6-m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.
- C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
 1. Use lapped expansion joint unless otherwise shown.
 2. Form expansion joints of intermeshing hooked flanges, not less than 1-inch (25-mm) deep, filled with butyl sealant concealed within joints as indicated on the drawings.
- D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- E. Fabricate cleats and attachment devices from galvanized steel as indicated minimum 20-gauge.
- F. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use, rivet joints where necessary for strength.
- G. Do not use graphite pencils to mark metal surfaces.

2.07 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. General: Any clarifications will be in accordance with National Roofing Contractors Association (NRCA) standards.
- B. Edge Flashing: Fabricate from the following materials:
 1. Pre-finished Aluminum-Zinc Alloy-Coated Steel: 24 gauge thick.
- C. Counter Flashings: Fabricate from the following materials:
 1. Pre-finished Aluminum-Zinc Alloy-Coated Steel: 24 gauge thick.
- D. Vent Flashing: Fabricate from the following materials:
 1. Collar: Pre-finished Aluminum-Zinc Alloy-Coated Steel; 24 gauge thick.
 2. Welded Base: Stainless Steel; 0.015 thickness.
- E. Curb Caps: Fabricate from the following materials:
 1. Pre-finished Aluminum-Zinc Alloy-Coated Steel: 24 gauge thick.
- F. Crickets: Fabricate from the following materials:
 1. Pre-finished Aluminum-Zinc Alloy-Coated Steel: 24 gauge thick.
- G. Pitch Pan: Fabricate from the following materials:
 1. Stainless Steel: 0.15 in thickness.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
 1. Verify compliance with requirements for installation tolerances of substrates.
 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 ELASTOMERIC UNLAYMENT/SEPARATION SHEET INSTALLATION

- A. Install underlayment as indicated on the drawings.
- B. Elastomeric Sheet Underlayment: Install underlayment, under sheet metal flashings and trim. Apply in shingle fashion to shed water, with lapped and taped joints of not less than 2-inches.

3.03 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - 1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 - 3. Install continuous cleats spaced not more than 1-inch apart. Anchor each cleat with fasteners through the vertical leg face at 12-inches on center.
 - 4. Install exposed sheet metal flashing and trim without excessive oil canning, and free of buckling and tool marks.
 - 5. Torch cutting of sheet metal flashing and trim is not permitted.
 - 6. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
 - 1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet of polyvinyl chloride (PVC) underlayment.
 - 2. Bed flanges in approved sealant where required for waterproof performance.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10-feet with no joints allowed within 24-inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges not less than 1-inch deep, filled with elastomeric sealant concealed within the joints.
- D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1¼-inches for wood screws
 - 1. Galvanized or Aluminum-Zinc Alloy-coated steel: Use stainless-steel fasteners
 - 2. Stainless Steel: Use stainless steel fasteners.
- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- F. Seal joints as required for watertight construction.
 - 1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1-inch (25-mm) into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).

2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."
- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets with solder to width of 1½-inches (38 mm); however, reduce pre-tinning where pre-tinned surface would show in completed Work.
 1. Do not solder metallic-coated steel and aluminum sheet.
 2. Do not pre-tin zinc-tin alloy-coated stainless steel
 3. Do not use torches for soldering.
 4. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
 5. Stainless-Steel Soldering: Tin edges of uncoated sheets, using solder for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.

3.04 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal flashing and trim to comply with performance requirements, NRCA's "Roofing and Waterproofing Manual" and "SMACNA's Manual.". Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

3.05 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of ¼-inch in 20-feet (6-mm in 6-m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.06 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturers written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.
- E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 72 00

ROOF ACCESSORIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section. Complete compliance with all provisions contained therein which affect work or requirements of this Section is mandatory.

1.02 SUMMARY

- A. Section Includes:
 - 1. Roof Hatch.
 - 2. Roof Hatch Railing System.
- B. Related Sections:
 - 1. Division 07 Section "Sheet Metal Flashing and Trim" for shop- and field-formed metal flashing, roof-drainage systems, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.

1.03 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

1.05 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work.
 - 1. Size and location of roof accessories specified in this Section.

1.06 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals.

1.07 COORDINATION

- A. Coordinate layout and installation of roof accessories with Bituminous Membrane Roofing, interfacing and adjoining construction to provide a leak-proof, weather-tight, and secure installation.

PART 2 PRODUCTS

2.01 ROOF HATCH

- A. Roof Hatches: Metal roof-hatch units with lids and insulated double-walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counter-flashing and weather-tight perimeter gasket and integrally formed deck-mounting flange at perimeter bottom.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Type SS-50, Aluminum Single Leaf Hatch by The Bilco Company or approved equal.
- B. Type and Size: Single-leaf lid, 47-inch (max) by 68-inch. Brake-formed hollow metal design, 1-inch concealed fiberglass insulation, 3-inch beaded, overlapping flange, fully welded corners, and internally reinforced for 40-lbf/sq. ft. (1.9-kPa) external live load and 20-lbf/sq. ft. (0.95-kPa) internal uplift load.
- C. Curb: Top of curb horizontal, 12-inches minimum height, curb flange to follow roof slope, 1-inch fiberboard insulation, fully welded corners, 3½-inch mounting flange with holes provided for securing frame to roof deck.
- D. Gasket: Extruded EPDM rubber permanently adhered to cover.
- E. Hinges: Heavy duty 316 stainless steel pintle hinges.
- F. Latch: Slam latch with interior and exterior turn handles and padlock hasps.
- G. Lift Assistance: Compression spring operators in telescopic tubes. Automatic hold-open arm with grip handle release.
- H. Finish: Aluminum: Mill finish.
- I. Electric Motor Operation: Provide UL listed electric operator, size as recommended by manufacturer to move door in either direction.
 - 1. Built-in motor operator
 - 2. Push button control station
 - 3. Wiring diagram
- J. linear actuator:
 - 1. Motion Systems Linear Actuator model# 85151
 - a. Stroke length: As required for 90 degree opening.
 - b. Gearbox: As required for 90 degree opening
 - c. Brake: Standard Friction Brake
 - d. Motor:
 - 1) 115 VAC 60Hz
 - 2) Permanent Split Capacitor Induction
 - 3) 3200 RPM
 - 4) Intermittent duty cycle (25%)
 - 5) 3 wire
 - 6) Enclosed construction
 - 7) Automatic reset thermal overload protector
 - 8) UL listed
 - 9) CSA recognized
 - 10) 1.2 amps no load
 - 11) 1.7 amps at 500 lbs with 20:1 ratio
 - 12) 18 MFD electrolytic capacitor
 - e. Required features:
 - 1) Cover tubes
 - 2) Self-aligning rod ends

- 3) Supporting bushing
- 4) Weatherproof motor enclosure

2.02 ROOF HATCH RAILING SYSTEM

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Type "RL2-SS", Hatch Railing System by The Bilco Company or approved equal.
- B. Posts and rails to be 1¼" schedule 40 pipe in 6061 T6 aluminum alloy.
- C. Curb mounting brackets and teardrop brackets to be 6063 T5 aluminum extrusion.
- D. Locking mechanism: Cast aluminum and spring hinges and all fasteners are type 316 stainless steel.
- E. Hatch rail system to meet the requirements of OSHA 29 CFR 1910.29 and OSHA strength requirements.
- F. Finish: Safety yellow powder coat paint finish.
- G. Manufacturer to provide a 5-year warranty against defects in material and workmanship.

2.03 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- C. Verify dimensions of roof openings for roof accessories.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Install roof accessories according to manufacturer's written instructions.
 - 1. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.
 - 2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
 - 3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
 - 4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.
- B. Roof-Hatch Installation:
 - 1. Install roof hatch so top surface of hatch curb is level.
 - 2. Verify that roof hatch operates properly. Clean, lubricate, and adjust operating mechanism and hardware.
- C. Clean exposed surfaces according to manufacturer's written instructions.

The University of Alabama in Huntsville
SWIRLL Roof Hatch
Project No. 18000A

07 72 00 - 4
ROOF ACCESSORIES

- D. Clean off excess sealants.
- E. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 90 05

JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sealants and joint backing.
- B. Precompressed foam sealers.

1.02 REFERENCE STANDARDS

- A. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.
- B. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics.

1.04 MOCK-UP

- A. Provide mock-up of sealant joints in conjunction with window under provisions of Section 01 40 00.
- B. Construct mock-up with specified sealant types and with other components noted.
- C. Locate where directed.
- D. Mock-up may remain as part of the Work.

1.05 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.06 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.
 - 1. Provide a Twenty (20) year material warranty for exterior silicone sealants used in wall applications.
 - 2. The installation contractor shall issue a separate two (2) year warranty against defects in installed materials and workmanship, beginning from the date of Substantial Completion of the installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Gunnable and Pourable Sealants:
 - 1. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
 - 2. Bostik Inc: www.bostik-us.com.
 - 3. Dow Corning Corporation: www.dowcorning.com.

4. Tremco Global Sealants: www.tremcosealants.com.
5. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 SEALANTS

- A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
- B. Type 1 - General Purpose Exterior Sealant: Silicone; ASTM C920, Grade NS, Class 25 minimum; Uses M, G, and A; single component.
 1. Applications: Use for:
 - a. Control, expansion, and soft joints in masonry.
 - b. Joints between concrete and other materials.
 - c. Joints between metal frames and other materials.
 - d. Other exterior joints for which no other sealant is indicated.
- C. Type 2 - Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
 1. Applications: Use for:
 - a. Concealed sealant bead in sheet metal work.
 - b. Concealed sealant bead in siding overlaps.
- D. Type 3 - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
 1. Applications: Use for:
 - a. Interior wall and ceiling control joints.
 - b. Joints between door and window frames and wall surfaces.
 - c. Other interior joints for which no other type of sealant is indicated.

2.03 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.

3.04 CLEANING

- A. Clean adjacent soiled surfaces.

3.05 PROTECTION

- A. Protect sealants until cured.

3.06 SCHEDULE

- A. Lap Joints in Exterior Sheet Metal Work: Type 2.
- B. Butt Joints in Exterior Metal Work and Siding: Type 1.
- C. Joints Between Exterior Metal Frames and Adjacent Work (except masonry): Type 1.
- D. Interior Joints for Which No Other Sealant is Indicated: Type 3; colors as shown on the drawings.

END OF SECTION

SECTION 09 90 00

PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
- D. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Floors, unless specifically so indicated.
 - 6. Glass.
 - 7. Concealed pipes, ducts, and conduits.
- E. See Schedule - Surfaces to be Finished, at end of Section.

1.02 RELATED REQUIREMENTS

- A. Section 05 50 00 - Metal Fabrications: Shop-primed items.

1.03 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

1.04 DEFINITIONS

- A. Conform to ASTM D 16 for interpretation of terms used in this section.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on all finishing products, including VOC content.
- C. Samples: Submit two paper chip samples, 8-1/2 x 11 inch in size illustrating range of colors and textures available for each surface finishing product scheduled.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 5 years experience.

1.07 MOCK-UP

- A. See Section 01 40 00 - Quality Requirements, for general requirements for mock-up.
- B. Provide panel, 12 feet long by 10 feet wide, illustrating special coating color, texture, and finish.
- C. Provide door and frame assembly illustrating paint coating color, texture, and finish.
- D. Locate where directed.
- E. Mock-up may remain as part of the work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.09 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 - 1. Benjamin Moore & Co: www.benjaminmoore.com.
 - 2. PPG Paints: www.ppgpaints.com.
 - 3. Sherwin-Williams Co: www.sherwin-williams.com.
- C. Primer Sealers:
 - 1. MAB.
 - 2. Sherwin Williams.

- D. Block Fillers:
 - 1. MAB.
 - 2. Sherwin Williams.
- E. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
 - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each coating material in quantity required to complete entire project's work from a single production run.
 - 3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content:
 - 1. Provide coatings that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- D. Chemical Content: The following compounds are prohibited:
 - 1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 - 2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.

2.03 PAINT SYSTEMS - EXTERIOR

- A. Paint ME-OP-2L - Ferrous Metals, Primed, Latex, 2 Coat:
 - 1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
 - 2. Gloss: Two coats of latex enamel.

2.04 PAINT SYSTEMS - INTERIOR

- A. Paint MI-OP-2L - Ferrous Metals, Primed, Latex, 2 Coat:
 - 1. Touch-up with latex primer.
 - 2. Semi-gloss: Two coats of latex enamel.

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.

- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- H. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- I. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- C. Apply each coat to uniform appearance.
- D. Sand wood and metal surfaces lightly between coats to achieve required finish.
- E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

- G. Label all fire and smoke walls in accordance with applicable Building Codes.

3.04 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Refer to Section 22 05 53 and Section 26 05 53 for schedule of color coding of equipment, duct work, piping, and conduit.
- B. Paint shop-primed equipment, where indicated.
- C. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- D. Finish equipment, piping, conduit, and exposed duct work in utility areas in colors according to the color coding scheme indicated.
- E. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.
- F. Paint all exposed mechanical, plumbing, or electrical accessories on sloped roof areas.

3.05 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection.

3.06 SCHEDULE - SURFACES TO BE FINISHED

- A. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically noted.
 - 2. Fire rating labels, equipment serial number and capacity labels.
- B. Paint the surfaces described below under Schedule - Paint Systems.
- C. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
 - 1. Paint all insulated and exposed pipes occurring in finished areas to match background surfaces, unless otherwise indicated.
 - 2. Paint all equipment, including that which is factory-finished, exposed to weather or to view on the roof and outdoors.
 - 3. Paint shop-primed items occurring in finished areas.

3.07 SCHEDULE - PAINT SYSTEMS

- A. Steel Fabrications: Finish all surfaces exposed to view.
 - 1. Exterior: ME-OP-2L, gloss; finish all surfaces, including concealed surfaces, before installation.
 - 2. Interior: MI-OP-2L, gloss.
- B. Shop-Primed Metal Items: Finish all surfaces exposed to view.
 - 1. Finish the following items:
 - a. Exposed surfaces of lintels.
 - b. Exposed surfaces of steel stairs and railings.

END OF SECTION

SECTION 22 05 00

PLUMBING GENERAL PROVISIONS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The other Contract Documents complement the requirements of this Section. The General Requirements apply to the work of this Section.

1.02 SCOPE OF WORK

- A. The Work shall include the furnishings of systems, equipment, and materials specified in this Division and as required by Contract Documents to include: supervision, operation, methods, and labor for the fabrication, installation, start-up, and tests for the complete Plumbing installation.
- B. Drawings for the Work are diagrammatic, intended to convey the scope of the Work and to indicate the general arrangement and locations of the Work. Because of the scale of the Drawings, certain basic items such as pipe fittings, access panels, and sleeves may not be shown. This Contractor shall be responsible for confirming the fixtures, piping and equipment fit the space provided. The location and sizes for pipe fittings, sleeves, inserts, and other basic items required by code and other sections shall be coordinated and included for the proper installation of the work.
- C. Fixture and Equipment Specification may not deal individually with minute items required such as components, parts, controls, and devices which may be required to produce the equipment performance specified or as required to meet the equipment warranties. Where such items are required, they shall be included by the supplier of the equipment, whether or not specifically called for in the Contract Documents.
- D. Where the words "provide", "furnish", "include", or "install" are used in the Specification or on the Drawings, it shall mean to furnish, install, and test complete and ready for operation, the items mentioned. If an item is indicated in the Contract Documents, it shall be considered sufficient for including same in the work.
- E. Where noted on the Drawings or where called for in other Sections of the Project Manual, the Contractor for this Division shall install equipment furnished by Others and shall make required service connections. Contractor shall verify with the supplier of the equipment the requirements for the installation.
- F. Coordinate with all trades in submittal of shop drawings. Shop drawings shall be prepared clearly indicating all applicable components. Space conditions shall be detailed to the satisfaction of all concerned trades, subject to review and final acceptance by the Engineer. In the event the Contractor installs his work before coordinating with other trades or so as to cause any interference with work of other trades, the necessary changes shall be made in the work to correct the condition, at no additional cost to the Owner.

1.03 CODES AND STANDARDS

- A. Conform to latest edition of governing codes, ordinances, or regulations of city, county, state, or utility company having jurisdiction. Where local codes are not applicable, conform to Standard Plumbing Code; Standard Mechanical Code; International Fire Code, NFPA, and National Electrical Code.

1.04 CONTRACTOR'S QUALIFICATIONS

- A. The qualifications of the Plumbing Contractor for this project shall be as follows:
 - 1. The Contractor shall have been in the contracting business for the last five (5) consecutive years and under their current corporation name with 75% of the same corporate officers.
 - 2. The Contractor shall have successfully completed at least two projects of comparable size and scope within the past five (5) years.
 - 3. The Contractor's main office shall be located within 100 miles driving distance of the project. If the Contractor's office is located more than 100 miles from job site, the Contractor shall submit for approval, 10 working days prior to bidding the job, the name of the service company within a 100 mile radius of the job site, who will be responsible for any/all service required during the warranty period. In either case, the Contractor shall be responsible for having a qualified technician on the job site within 4 hours after receiving a service call.
 - 4. When requested, the contractor shall provide substantiating proof of these requirements.

1.05 FEES, PERMITS, AND INSPECTIONS

- A. Secure all permits and pay all fees required in connection with the Work.
- B. Coordinate and provide such inspections as are required by the Authorities with jurisdiction over the site.
- C. Where applications are required for procuring of services to the building, prepare and file such application with the Utility Company. Furnish all information required in connection with the application in the form required by the Utility Company.

1.06 ACTIVE SERVICES

- A. Existing active services; water, gas, sewer, electric, are to be located and shall be protected against damage. Do not prevent or disturb operation of active services which are to remain. If active services are encountered which require relocation, make request to authorities with jurisdiction for determination of procedures. Where existing services are to be abandoned, they shall be terminated in conformance with requirements of the Utility or Municipality having jurisdiction.

1.07 SITE INSPECTION

- A. Contractor shall inspect the site to familiarize himself with conditions of the site which will affect his work and shall verify points of connection with utilities, routing of outside piping to include required clearances from any existing structures, trees or other obstacles.
- B. Extra payment will not be allowed for changes in the Work required because of Contractor's failure to make this inspection.

1.08 SUBSTITUTIONS

- A. Any equipment submitted as "equal" to the basis of design shall be accompanied with a comparison letter from the vendor stating any differences from the equipment being submitted and the basis of design. A letter is also to be submitted from the vendor, on the

vendor's letterhead, stating that the vendor has received a copy of the job specifications, all addendums and any necessary drawing.

- B. Substitutions for the scheduled and specified equipment shall only be done with the prior approval of the engineer and shall be obtained in writing. Prior approvals shall be obtained no less than ten working days prior to the bid date. Prior approval shall not relieve the contractor of supplying equipment that meets the specifications, capacities, efficiencies, physical dimensions, etc.

1.09 PROTECTION

- A. Special care shall be taken for the protection of equipment furnished. Equipment and material shall be completely protected from weather elements, painting, plaster, etc. until the project is completed. Damage from rust, paint, scratches, etc. shall be repaired as required to restore equipment to original condition.
- B. Where the installation or connection of equipment requires work in areas previously finished by other Contractors, the area shall be protected and not marred, soiled, or otherwise damaged during the course of such work. Contractor shall arrange with the other Contractors for repairing and refinishing of such areas which may be damaged.
- C. When welding is required inside building, provide one man for a fire watch. Fire watch shall require adequate protection of existing surfaces and observance of lower floors where penetrations exist.

1.10 SUBMITTALS

- A. General
 - 1. Submit to Engineer shop drawings and product data required by the drawings and specifications.
 - 2. Contractor shall compile all data including but not limited to ductwork materials and construction details, ductwork layout, manufacturers catalog and product data, controls wiring diagrams and material data, piping, insulation, water treatment, and test and balance.
 - 3. Submit a minimum of 7 copies of data, more if required by the Architect.
- B. Submittal Requirements
 - 1. Prepare submittals compiled in a 3 ring, hard bound, loose leaf binder. The face of the binder shall be clearly marked with the project title and number, the name of the Owner, Architect, Engineer, General Contractor and this contractor.
 - 2. The first page inside the binder shall provide an index, numerically indicating all sections applicable to this submittal.
 - 3. Separate binders shall be provided for plumbing trade.
 - 4. Provide tab dividers for each section submitted. In the event an item appears on the drawings not specifically covered by the specifications, provide an additional numeric tab at the end of the index detailing the item and include the submittal data in the binder.
 - 5. All equipment included on the submittal sheets shall be marked to indicate the "Tag" name or number of the equipment as shown on the drawings. The equipment shall be high-lighted, where necessary, to clarify which items are being submitted.
 - 6. For the piping submittals, when required, the contractor will be provided with an electronic copy of the plumbing floor plans. Piping layout submittals shall consist of

- one copy on a reproducible medium such as mylar. The drawings shall be on standard size sheets of 24" x 36" or 30" x 42". The reproducible copy shall be returned to the contractor with the engineers' approval stamp and comments.
7. Submit only complete project submittals. Partial submittals or submittals not complying with the above requirements shall be returned to the contractor unmarked and rejected.
 8. In the interest of project expediency the contractor may pre-submit long lead items for pre-approval. However, the contractor shall not be relieved of including the same data as required by submittal binder and shall be included therein.
 9. The Contractor may turn in submittals without control drawings if they require a longer production time. All other items shall be included.
 10. Provide a tab for items not included and include an explanation of why item is not included in the submittal and the expected submittal date.
 11. Review shop drawings and product data prior to submission to Engineer.
 12. Verify field measurements, field construction criteria, catalog numbers, and similar data.
 13. Coordinate each submittal with work of the project and Contract Documents.
 14. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Engineer's review of submittals, unless Engineer gives written acceptance of specific deviations.
 15. Notify Engineer in writing of deviations from requirements of Contract Documents at time submittals are made. A "deviation" shall be construed to mean a minor change to the sequence indicated on drawings or specification. A "deviation" is not intended to allow substitutions or product options.
 16. Do not begin work which requires submittals until submittals have been returned with Engineer's stamp and initials or signature indicating review and approval. Materials and equipment that were installed prior to being not approved shall be removed and replaced with approved items at no additional cost to other parties.
 17. Shop Drawings and/or submittals requiring resubmission to the Engineer due to non-compliance with the Contract Documents and/or incompleteness shall be thoroughly reviewed by the Contractor prior to delivery to the Engineer for review. The Contractor shall ensure the completeness and compliance of the submittal materials and shall reimburse the Engineer at their standard hourly billing rates for review of submittals/shop drawings beyond the second submission.
 18. Attention is directed to the fact that Engineer's review is only to check for general conformance with the design concept of the project and general compliance with Contract Documents. No responsibility is assumed by Engineer for correctness of dimensions, details, quantities, procedures shown on shop drawings or submittals.
 19. Omission in shop drawings of any materials indicated in Contract Drawings, mentioned in Specifications, or required for proper execution and completion of Work, does not relieve the Contractor from responsibility for providing such materials.
 20. Approval of a separate or specified item does not necessarily constitute approval of an assembly in which item functions.

1.11 OPERATING AND MAINTENANCE MANUALS

A. General

1. Provide searchable CD in PDF format of all product data, and other information described in this Section for use in compiling operating and maintenance manuals.
2. Provide three up-to-date copies of shop drawings, product data, and other information described in this Section for use in compiling operating and maintenance manuals.
3. Provide legible submittals made by permanent reproduction copy equipment from typewritten or typeset originals.
4. Pre-punch 8-1/2 inch x 11 inch sheets for standard three ring binders.
5. Submit larger sheets in rolled and protected packages.

B. Compilation

1. The Contractor will receive shop drawings, brochures, materials lists, technical data of all types, warranties, guarantees, and other pertinent information and will assemble, catalog, and file information in loose-leaf, hardback three-ring binders.
2. Submittal Format: (Provide each of the following items, as applicable, for each required item or system. Requirements will vary, depending on the equipment. Refer to specific Specification section requirements.)
 - a. Item: (Use appropriate Section title.)
 - b. System Description: (Provide a detailed narrative description of each system, describing function, components, capacities, controls and other data specified, and including the following:
 - (1.) Number of.
 - (2.) Sizes.
 - (3.) Type of operation.
 - (4.) Detailed operating instructions, including start-up and shut-down of each system, with indications for position of all controls, as applicable.
 - (5.) Wiring Diagrams: (Complete wiring diagrams for internally wired components including controls.)
 - (6.) Operating Sequence: (Describe in detail.)
 - (7.) Manufacturers Data: (Provide catalog data sheets, specifications, nameplate data and parts list.)
 - (8.) Preventative Maintenance: (Provide manufacturer's detailed maintenance recommendations.)
 - (9.) Trouble Shooting: (Provide manufacturer's sequence for trouble-shooting procedures for operational problems.)
 - (10.) Extra Parts: (Provide a listing of extra stock parts furnished as part of the Contract.)
 - (11.) Warranties: (Provide specific manufacturer's warranty. List each component and control covered, with day and date warranty begins,

date of expiration, and name, address and telephone number of person to contact regarding problems during warranty period.)

- (12.) Directory: (Provide names, addresses and telephone numbers of Contractor, its subcontractors, suppliers, installers and authorized service and parts suppliers. Format as follows:)

Contractor:

Address:

Telephone No.:

Person to Contact:

Subcontractor:

Address:

Telephone No.:

Person to Contact:

Installer:

Address:

Telephone No.:

Person to Contact:

Manufacturer:

Address:

Telephone No.:

Person to Contact:

Local Service Representative:

Address:

Telephone No.:

Person to Contact:

1.12 RECORD DRAWINGS

A. Detailed Requirements for Record Drawings

1. During the progress of the work, the Contractor shall require the job superintendent for the plumbing, air conditioning, heating, ventilating, and fire protection subcontractors to record on their field sets of drawings the exact locations, as installed, of all conduits, pipes, and ducts whether concealed or exposed which were not installed exactly as shown on the contract drawings.
2. The Contractor shall submit redline as-built drawings to the Engineer for review.
3. The Engineer shall authorize the Contractor to produce and distribute the redline as-built drawings in PDF format as follows:
 - a. One (1) computer disc (CD) to the Engineer.

- b. One (1) CD to the Architect.
- c. Three (3) hard copies full size
- d. Two (2) CD to the Owner.

1.13 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. For products specified only by reference standard, select product meeting that standard, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any one of products and manufacturers named which complies with specifications.
- C. For products specified by naming several products or manufacturers and stating "or equivalent", "or equal", or "or Engineer approved equivalent", or similar wording, submit a request for proposed substitutions for any product or manufacturer which is not specifically named; for review and approval by the Engineer.
- D. For products specified by naming only one product and manufacturer, there may be an option of an Engineer approval of a product of equal or greater quality or size.

1.14 SUBSTITUTION SUBMISSIONS

- A. Contractor's Base Bid shall be per contract documents.
- B. Submit separate request for each substitution. Support each request with:
 - 1. Complete data substantiating compliance of proposed substitution with requirements stated in contract documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - (1.) Product description.
 - (2.) Reference standards.
 - (3.) Performance and test data.
 - c. Name and address of at least two similar projects on which product has been used, and date of each installation.
 - d. Itemized comparison of the proposed substitution with product specified; list significant variations.
 - e. Data relating to changes in construction schedule.
 - f. Any effect of substitution on separate contracts.
 - g. List of changes required in other work or products.
 - h. Designation of availability of maintenance services, sources of replacement materials.
 - i. Provide certification of product compatibility with adjacent materials.
- C. Substitutions will not be considered for acceptance when:
 - 1. They are indicated or implied on shop drawings or product data submittals without a formal request from Contractor or his supplier prior to bid.
 - 2. Acceptance will require substantial revision of contract documents.

3. In judgement of Engineer, do not include adequate information necessary for a complete evaluation.
4. Substitute products shall not be ordered or installed without written acceptance of Engineer.
5. Engineer will determine acceptability of proposed substitutions.

1.15 CONTRACTOR'S SUBSTITUTION RESPONSIBILITIES

- A. In making formal request for substitution, Contractor represents that:
 1. He has investigated proposed product and has determined that it is equivalent to or superior in all respects to that specified.
 2. He will provide same warranties or bonds for substitution as for product specified.
 3. He will coordinate installation of accepted substitution into the work, and will make such changes as may be required for the work to be complete in all respects. This includes revisions due to changes in electrical characteristics, physical size and weight, service requirements, service clearances, etc.
 4. He waives claims for additional costs caused by substitution which may subsequently become apparent.
- B. The contractor shall have included all costs associated with the substitution for the specified products or materials, and that no additional cost will be incurred by any other party in order to fully incorporate the substituted item(s).
- C. The contractor agrees to reimburse the Architect/Engineer for any architectural or engineering re-design that is required by the substitution to be fully incorporated. The reimbursement shall be at the Architect/Engineer's standard billing rate.

1.16 ENGINEER DUTIES

- A. Review Contractor's requests for substitutions with reasonable promptness.
- B. Notify Contractor in writing of decision to accept or reject requested substitution.

1.17 CONTRACTOR OBSERVATION DUTIES

- A. When the Contractor schedules an observation for the Engineer, all work for that observation, i.e., underground, above ceiling, or in walls prior to gypsum board installation, shall be completed. If the work is not complete and not ready for inspection, the Engineer will notify the Contractor that the inspection was not performed. The Contractor shall complete the work, and then re-schedule the inspection for the Engineer, for which the Contractor shall reimburse the Engineer at their normal hourly billing rates.
- B. Minimum Required inspections by Engineer:
 1. Underground utilities with appropriate test prior to covering pipe.
 2. In walls prior to gypsum board installation or installing insulation.
 3. Above ceiling: Prior to ceiling installation or installing insulation.
 4. Piping systems testing: When performed in smaller sections, the entire system will be required to be retested.

1.18 FINISHING

- A. General: Prior to acceptance of the installation and final payment of the Contract, the Contractor shall perform the work outlined herein.

- B. Cleaning: At the conclusion of the construction, the site and structure shall be cleaned thoroughly of all debris and unused materials remaining from the mechanical construction. All closed off spaces shall be cleaned of all packing boxes, wood frame members, and other waste materials used in the mechanical construction.
- C. The entire system of piping and equipment shall be cleaned internally. The Contractor shall open all dirt pockets and strainers, completely blowing down as required and clean strainer screens of all accumulated debris.
- D. All tanks, fixtures, and pumps shall be drained and proven free of sludge and accumulated matter.
- E. All temporary labels, stickers, etc., shall be removed from all fixtures and equipment. (Do not remove permanent name plates, equipment model numbers, ratings, etc.). All equipment shall have affixed adjacent to the permanent nameplate, the unit identification on an engraved label with permanent adhesive.
- F. Plumbing fixtures, equipment, tanks, pumps, etc., shall be thoroughly cleaned.

1.19 TEST AND DEMONSTRATIONS

- A. Systems shall be tested and placed in proper working order prior to demonstrating systems to Owner.
- B. Prior to acceptance of the mechanical installation, demonstrate to the Owner or his designated representatives all essential features and functions of all systems installed, and instruct the Owner in the proper operation and maintenance of such systems. The contract shall allow for five (5) working days to perform the demonstrations.
- C. Provide necessary trained personnel to perform the demonstrations and instructions. Provide manufacturer's representatives for systems as required to assist with the demonstrations.
- D. Dates and times for performing the demonstrations shall be coordinated with the Owner.
- E. Upon completion of demonstrations, provide a certificate testifying that demonstrations have been completed. Certificate shall list each system demonstrated, dates demonstrations were performed, names of parties in attendance, and shall bear signatures of contractor and owner.

1.20 PAINTING AND IDENTIFICATION

- A. Touch-up paint where damaged on equipment furnished with factory applied finish, to match original finish.
- B. Provide engraved, laminated plastic tags for all equipment. Tags shall be attached with permanent adhesive.
- C. All support steel provided by the mechanical contractor shall be cleaning of all rust and dirt and painted with a coat of rust inhibiting primer. In addition, all steel installed outdoors shall also have a finish coat of weather resistant paint.
- A. Where exposed insulated piping extends to floor, provide sheet metal guard around insulation.

1.21 ANCHORING OF EQUIPMENT

- A. All equipment located on floor slab, that is not mounted on wheels and is capable of being moved shall be secured to the floor with anchor bolts. A minimum of two bolts are required per each piece of equipment and bolts shall be of sufficient size to prevent equipment from overturning.

1.22 ISOLATION OF EQUIPMENT

- A. All equipment shall be installed with isolating service valves. Unions or flange fittings shall be provided for removal of the isolated equipment.

1.23 PROTECTION OF ELECTRICAL EQUIPMENT

- A. Water, waste & vent, or rain water leader piping shall not be installed in electrical or communication rooms or directly above electrical equipment.

1.24 CONNECTIONS FOR FIXTURES AND EQUIPMENT UNDER ANOTHER SECTION OR BY OWNER

- A. Rough all equipment requiring connection to systems provided under this Division. Verify requirements and current locations before proceeding with work.
- B. Make all connections to equipment furnished under another Section or by owner as required to obtain complete and working systems.

1.25 SYSTEM GUARANTEE

- A. Work required under this Division shall include one-year guarantee. Guarantee by Contractor to Owner is to replace for Owner any defective workmanship or material which has been furnished under contract at no cost to the Owner for a period of one year from substantial completion. Guarantee shall also include all reasonable adjustments of system required for proper operation during guarantee period. Guarantee shall not include normal preventative maintenance services or filters.
- B. At "Demonstration", one-year guarantee provision by Contractor shall be explained to Owner.
- B. All sealed hermetic refrigeration systems shall be provided with five-year factory warranty from substantial completion.

1.26 ADJUSTING

- A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
- B. Operate and adjust disposers, emergency eye wash/showers, hot-water dispensers and controls. Replace damaged and malfunctioning units and controls.
- C. Adjust water pressure at faucets and flushometer valves to produce proper flow and stream.
- D. Replace washers and seals of leaking and dripping faucets and stops.
- E. Install fresh batteries in sensor-operated mechanisms.

1.27 CLEANING

- A. At completion of all work, fixtures, exposed materials and equipment shall be cleaned with manufacturers' recommended cleaning methods and materials. Do the following:
 - 1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.
 - 2. Remove sediment and debris from drains.
- B. After completing installation of exposed, factory-finished fixtures, faucets, and fittings, inspect exposed finishes and repair damaged finishes.

1.28 FINAL ACCEPTANCE

- A. Provide protective covering for installed fixtures and fittings, including but NOT limited to bathtub semi-flexible high impact plastic protective covers with deep fluted sidewalls with non-skid foam pas to absorb shock and prevent scratches.
- B. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.
- C. Before final acceptance, the Plumbing Contractor shall furnish a certificate of inspection and final approval from the plumbing Inspector to the Owner and be in accordance with the latest revisions of the applicable codes and the Approved Plumbing Drawings and Specifications. Contractor shall also furnish booklet of test, sterilization compliance and backflow devices certificates.

END OF SECTION

SECTION 22 05 53

PLUMBING IDENTIFICATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Identification of domestic cold, hot & recirculating water, non-potable water, service valves, natural gas, sanitary drain, sanitary vent, compressed air, emergency rain leader and rain leader piping systems as identified in Section 3.2-B

1.02 SUBMITTAL

- A. Submit samples and manufacturer's installation instructions for all plumbing identification products used.

PART 2 - PRODUCTS

3.01 MATERIALS

- A. **EXTERIOR Pipe Markers:** Pipe markers shall be Outdoor grade acrylic plastic with UV inhibitors seals in and protects graphics, snap around material for sizes up to 8" OD. Pipes larger than 8" shall be flat strap around markers fastened to pipes with heavy duty nylon ties. Color coded background, color of legend letter size and length of letter size and length of color field shall conform completely with the latest edition of ANSI A13.1. Markers shall indicate direction of flow. Legends shall be alternately reversed and repeated for viewing from any angle. Markers shall be factory formed for the installed diameter. Markers shall be Seton Ultra-Mark Snap-Around High Performance or approved equal. Pipe Markers, see 3.2 B schedule for color code requirements of pipe markers. Provide directional arrows for each service.
- B. **INTERIOR Pipe Markers:** Pipe markers shall be cylindrically coiled printed plastic sheets, snap around material for sizes up to 5.75" OD, pipes larger than 5.75" shall be Flat strap around markers fastened to pipes with heavy duty nylon ties. Color coded background, color of legend letter size and length of letter size and length of color field shall conform completely with the latest edition of ANSI A13.1. Markers shall indicate direction of flow. Legends shall be alternately reversed and repeated for viewing from any angle. Markers shall be factory formed for the installed diameter. Markers shall be Seton Setmark or approved equal. Pipe Markers, see 3.2 B schedule for color code requirements of pipe markers. Provide directional arrows for each service.
- C. **Ceiling Markers:** Markserv MS900 self-adhesive vinyl, 0.0032" thick PVC with permanent pressure-sensitive acrylic adhesive for use of identifying valve locations above acoustical tile ceilings 7/8" diameter, 7 colors available - yellow, green, blue, orange, black, red and white. Fire protection water color to be orange with white number. Markers shall be numbered consecutively with standard 3/16" characters. Markers shall be installed on metal grid of lay-in ceilings and located within 24" of valve above ceiling. Markers shall be Markserv, Seton or equal.
- D. **Metal Tags:** Brass with 1/2 inch high black filled numbers and/or letters, minimum 1-1/2 inch diameter, brass link chain and hooks.
- E. **Plastic Nameplates (Interior Applications):** Laminated three-layer plastic with engraved white letters on black background color.
- F. **Aluminum Nameplates (Exterior Application):** .020 engraved aluminum plates with white letters on black background color. Plates shall be secured with optional 3M adhesive and

two retaining screws shall be provided with each plate. Plates shall be 3" x 1" minimum size.

PART 3 - EXECUTION

3.02 GENERAL

- A. All markers to be installed on a clean finished pipe or insulated surface. These markers shall be installed on piping above ceilings.

3.2=03 PIPING

- A. Piping shall be identified at maximum 10 feet intervals, at each side of wall penetration, and at each valve. Piping in exposed areas may be identified at maximum 20' intervals. Piping identification shall include type of service and direction of flow.
- B. Piping above ceiling shall be marked by the following schedule
 - a. Domestic Cold Water - White letters on Green, Seaton Style No. M3991.

END OF SECTION

SECTION 22 07 10

INSULATION FOR PLUMBING SYSTEMS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Work of this section shall include the thermal insulation for the following plumbing systems that may or may not be present on this project:
 - 1. Domestic cold water.
- B. This work shall be performed by a competent insulation contractor whose primary business is the installation of insulation systems and who has been in this business for a minimum of five years. The Insulation Contractor shall be independent from the Plumbing Contractor.

1.2 SUBMITTALS

- A. Provide submittals consisting of product literature for each insulation type, finish type and equipment served. Provide submittals on method of installation for each type of insulation used.
- B. Product samples and installation samples are required and shall be provided at the discretion of the engineer. Samples may include but are not limited to, 90° Ells, 45° Ells, valves and sections of pipe.
- C. Provide submittals consisting of Insulation Contractor's qualifications
- D. Mockups: Before installing insulation, build mockups for each type of insulation and finish listed below to demonstrate quality of insulation application and finishes. Build mockups in the location indicated or, if not indicated, as directed by Engineer. Use materials indicated for the completed Work. Piping Mockups:
 - 1. One 3 foot section of NPS 2 straight pipe with a joint.
 - 2. One each of a 90-degree threaded, flanged, & sweat elbow.
 - 3. One NPS 2 or smaller valve and one NPS 2-1/2 or larger valve.
 - 4. Each type of support hanger to be used including hanger saddle and rigid insulation as specified.
 - 5. One threaded strainer and one flanged strainer with removable portion of insulation

PART 2 - PRODUCTS

2.1 THERMAL INSULATION

- A. All insulating systems shall be tested on a composite basis in accordance with ASTM E-84, NFPA 255 and UL 723. All material shall be finished with surfaces having a maximum flame spread rating of 25 and a maximum smoke developed rating of 50 and under ASTM E-84.
- B. Interior piping Rigid Fiberglass - .23K Factor, 3.5 To 5.5 PCF size dependent density, minimum 4.3 R value, 0°F to 1000°F operating temperature, flame spread rating 25, maximum smoke developed rating 50 & fungi resistant jacket. Insulation shall be Owens Corning - Fiberglass ASJ/SSL-II with positive closure system, or prior approval.
- C. Interior fittings on 1/2 and 3/4 inch pipes and accessories may use job built mitered fittings of similar material as piping. Fittings on piping 1 inch and larger will use molded preformed

fiberglass fittings sized for the fitting or device being insulated. All fittings and devices being insulated shall be covered with a preformed, white, snap-on type, molded PVC jacket cover. Stainless steel tack fasteners hold the cover together at the overlapping throat seam. Matching white, pressure sensitive tape seals and finishes the fitting and adjacent pipe insulation joint. Molded covers shall be equal to Certainteed Snap Form Fitting System. Fittings and accessories to be covered include, but not limited to, 45 and 90-degree elbows, tees, reducers, increasers, valves, check valves & unions.

- D. Above ground exterior piping shall be equal to Foamglass - .33K factor suitable for 900°F, 8.5 # density per square foot. Equal to Pittsburgh Corning - Strata - Fab system with ASJ jacket.
- E. Fittings for above ground exterior piping shall be machine formed, routed and fitted for specific size fitting and of same material as in D.
- F. Below ground exterior piping shall be of same materials as D except without ASJ jacket.
- G. Below ground exterior fittings shall be of same material as in D except without ASJ jacket.
- H. Closed cell, flexible elastomeric thermal insulation, black in color, supplied in unslit tubing, equal to Armaflex AP 2000.
- I. Closed cell, flexible elastomeric thermal sheet insulation, 1 inch thick, black in color.
- J. Semi-rigid fiberglass board, 3 lb density, thermal conductivity compliance ASTM C 165, 650°F temperature limit, 1 1/2" thick. High temperature fiberglass bonded to a flexible jacketing. Jacketing is to be laminated of white Kraft and aluminum foil, reinforced with fiberglass and chemically treated for fire and smoke safety. Equal to Manville Pipe and Tank Insulation.

2.2 INSULATION FINISH MATERIALS

- A. White all Service Jacket(ASJ).
- B. Glass fabric equal to Foster Mast-A-Fab.
- C. Smooth aluminum jacketing, 0.016-inch thickness for interior and 0.032 inch thickness for exterior use. Equal to Pabco.
- D. Aluminum fittings for elbows, tees and devices, precision formed, smooth and mar-free finish, 0.024 inches thick. Equal to Pabco.
- E. Roofing Felt, 15 lb.
- F. Black asphaltic cutback mastic for underground or outdoor use. Equal to Foster C.I. Mastic 60-25.

2.3 ADHESIVES

- A. An air-drying contact adhesive specifically designed for joining seams and ends of Armaflex AP-2000 in Specification Section 2-2.1 I. Equal to Armstrong 520 Adhesive.

2.4 FINISHES

- A. A white elastomeric, UL classified outdoor grade, vinyl mastic for finished outdoor insulation. Water based latex enamel; equal to WB Armaflex Finish.

PART 3 - EXECUTION

3.1 WORKMANSHIP

- A. All materials shall be applied by workmen skilled in this trade. Unsightly work shall be cause

for rejection.

- B. Mechanical fasteners shall be used whenever possible to assure permanent construction.
- C. Materials shall be applied only after systems have been tested and all surfaces are clean and dry.
- D. Cellular glass block supports or other suitable non-compressible insulation material equal in thickness to the insulation and 12 inches in length shall be installed at hangers to eliminate through-metal conductance. Provide 16 GA, 180 degree, galvanized sheet metal saddles in lengths as detailed on the drawings.
- E. All insulation shall be vapor sealed. All joints, laps, breaks, and faults in vapor barriers of insulations covering cold surfaces, shall be thoroughly sealed.
- F. Insulation that becomes wet for any reason shall be removed, replaced and resealed at the expense of this Contractor.
- G. Piping systems requiring testing to be witnessed by the Engineer shall not be insulated until such systems have been tested and approved.
- H. Do not insulate any moving parts; valve handles, expansion tanks or backflow preventers.

3.2 APPLICATION

- A. Insulation Thickness Application Schedule

NOMINAL PIPE SIZE	INTERIOR	EXTERIOR ABOVE GRADE	BELOW GRADE/SLAB
1/2" - 1"	1"	1-1/2"	1"
1 1/4" - 2 1/2"	1"	1 1/2"	1"
3" and above	1 1/2"	2"	1 1/2"

- B. Rigid fiberglass insulation for interior domestic cold, hot & recirculating

- 1. Piping

All insulation shall be butted together and securely stapled in place with outward clinching staples on 3" centers on the lapping seams. Factory provided laps of ASJ tape of same type as jacket on insulation shall be used on butt joints as per (Part 2-2.1-B).

- 2. Fittings

Fittings shall be molded fiberglass with snap on PVC jacket and matching white tape on adjacent pipe insulation as per (Part 2-2.1-C).

3. Piping in concrete masonry walls (CMU): All insulation shall be as per (Part 2-2.1.H) with Armacell fabricated fittings. Provide AP Armaflex Insulation tape and/or Armaflex adhesives as required for joints and fittings as recommended by manufacturer. Provide Armafex pipe hangers when required for supports.

C. Rain Leaders and/or Emergency Rain Leaders

1. Insulation Thickness Application Schedule

NOMINAL PIPE SIZE	EXPOSED CONDITIONED SPACE	EXPOSED NON-CONDITIONED SPACE	CONCEALED WITHIN BLDG. INSULATION	CONCEALED OUTSIDE BUILDING INSULATION
3" and 4"	1"	1 1/2"	1"	2"
6" to 10"	1"	1 1/2"	1"	2"
12" to 16"	1 1/2"	2"	1 1/2"	2 1/2"
18" to 24"	2"	2 1/2"	2"	2 1/2"

2. Rain leaders and emergency rain leaders are to be completely insulated including all portions of horizontal and vertical piping to point beyond last elbow where piping transitions downward to below slab or below grade, then the last section of vertical pipe must be insulated 24" minimum in vertical. Insulation will continue up to the roof drain hub joint. The roof drain hub and pan and any area surrounding the roof drain exposed shall be insulated by this contractor.
3. Piping
 All insulation shall be butted together and securely stapled in place with outward clinching staples on 3" centers on lapping seams. Factory provided laps of ASJ tape of same type as jacket on insulation shall be used on butt joints as per (Part 2-2.1-B).
4. Fittings
 Fittings shall be molded fiberglass with snap on PVC jacket and matching white tape on adjacent pipe insulation as per (Part 2-2.1-C).
5. Roof drain hubs and pans to be insulated per (Part 2-2.1-l) Miter cut the insulation to fit and glue into place.
6. At ends of pipe insulation, bevel the insulation 30 degrees and seal with two coats Childers CP-30.

- D. Traps on condensate receiving floor drains above grade.
1. Wrap traps on hub and floor drains per (Part 2-2.1 I). Insulation shall be cut and formed to the contours of the hub and wrapped around pipe. Factory adhesive shall be used to seal the mitered joints and connection.
- E. Storage tanks
1. Hot water storage tanks shall be wrapped with semi-rigid fiberglass board as per (Part 2-2.1 J). Wrap the insulation around the tank to verify the length to be joined for an overlap. Cut the insulation and strip off a 3" wide strip for the overlap. Wrap the insulation around the tank and verify that the insulation is butted. Attach the 3" wide overlap with outward clinching staples spaced 3 inches O.C. Cut neatly for all penetrations and seal off any tears, joints or staples with ASJ jacket tape of same materials.
- F. Hot water piping below grade
1. Underground hot water pipe and fitting shall use the following schedule of sizes (see Part 3-3.2 A).
 2. Provide Foamglass insulation for underground hot water piping as per (Part 2-2.1 F). Underground piping insulation shall be applied over a clean dry surface. Provide 22 gage galvanized wire at 12" O.C. Cover impregnated felt and stagger joints at midpoint. Apply sealant at joints, laps and seams. Secure felt with wire at 12" O.C. with 22 gage galvanized wire. Apply tack coat over felt at not less than 4 gal. per 100 square feet. Embed cloth membrane into wet tack coat. Smooth membrane to avoid wrinkles and overlap seams at least 2". Apply a finish coat at 8 gallons per 100 square feet making certain that membrane is fully covered. Allow 8 hours of drying time before any piping is covered.
 3. Underground fittings shall be installed as described above. Provide materials as per (Part 2-2.1 G).
- G. Cold, hot water, hot water re-circulating and non-potable water piping above exterior grade exposed and concealed.
1. Above grade exterior cold and hot water shall be insulated with Foamglass as per (Part 2-2.1 D). Fittings shall be as in (Part 2-2.1 E).
 2. Piping
All insulation shall be applied over a clean dry surface. Factory provided laps of ASJ tape of same type as jacket on insulation shall be used on butt joints. All laps and penetrations shall be sealed with a vapor barrier mastic finish.
 3. Fittings
Fitting insulation shall be covered with two coats of vapor barrier mastic with an intermediate layer of glass fabric.
 4. All above grade exterior piping shall be covered with aluminum jacketing. Aluminum shall be applied to a clean dry surface. Overlap butt joints 4" and apply 1/2" wide bands of aluminum on 8" O.C. and at each end of fittings. On exterior piping, the longitudinal seam shall be located at the bottom center of piping and turned 1/4" down for a drip edge. All joints on exterior piping shall be made water tight with suitable silicone caulking. Caulking is to be applied to joints prior to bands being installed.

- H. All interior exposed piping and fittings located in manufacturing areas, mechanical rooms, etc. below 8'0" AFF shall be wrapped with aluminum jacketing as per (Part 2-2.2 C and D). Provide 1/2" wide clinching aluminum bands located at a maximum of 8" O.C.

3.3 MISCELLANEOUS

- A. This contractor will contact the engineer prior to start of all phases of work as follows:
 - 1. Installation of underground insulation.
 - 2. Exterior above grade installation.
 - 3. Interior insulation installation.
- B. The engineer will ascertain the continuation of work subject to the requirements aforementioned.

END OF SECTION

SECTION 22 11 10

DOMESTIC WATER PIPING

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. The following described work, materials and equipment shall be furnished and installed as shown on the Drawings and as herein specified.
 - 1. All domestic water service and piping to all fixtures and equipment.

1.2 REFERENCES

- A. All plumbing installation and fabrication shall be in accordance with applicable State and Local Plumbing Codes.

1.3 SUBMITTALS

- A. Submit catalog data for all materials listed under this section and per basic mechanical requirements. Include submittal data on related specifications also.
- B. Materials installed without review or after rejection shall be replaced by this contractor with acceptable items at the Engineer's direction.
- C. All materials shall be new, without defect, first line quality unless specifically noted or specified otherwise.
- D. The supplier, by submitting, certifies the materials and equipment to be satisfactory for the application involved.
- E. Contractor further agrees that if deviations, discrepancies or conflicts between submittals and specifications are discovered either prior to or after submittals are processed by the engineer, the design drawings and specifications shall control and be followed.

PART 2 - PRODUCTS

2.1 DOMESTIC WATER PIPING SYSTEM

- A. Above Grade:
 - 1. Copper Pipe: Type L hard drawn copper per ASTM B-88. Fittings: Wrought copper or cast brass. Joints: Lead-free, tin-silver solder. Pipes greater than 3" shall have flanged connections at ALL valves and equipment.
- Notes:
- 1. Copper press fittings on above grade copper piping will be allowed. System shall be Rigid Tool Company "Pro-Press" system ProPress Fittings: Bronze or copper shall conform to the material requirements of ASME B16.18 or ASME B16.22, NSF/ANSI 61-G when used in a potable water systems and ICC LC-1002. Pro-Press fittings shall have either an EPDM, FKM, or HNBR sealing element and Smart Connect (SC) feature. ½-inch thru 2" shall have a press on each side of the sealing element identified by the double press. 2-1/2-inch thru 4-inch shall have a 420 stainless steel grip ring, PBT separator ring, and either EPDM, or FKM sealing element. Sealing elements shall be verified for the intended use.
- B. All solder joints shall be soldered with an approved listed solder. Acid core solder shall not be used.

PART 3 - EXECUTION

3.1 GENERAL

- A. Obtain exact centerline rough-in dimensions between partitions or walls from the Architectural Drawings. Work shall be roughed-in so that all exposed piping will be straight and true without bends or off-sets. Water supplies shall connect through walls with stops and chrome plated escutcheons with setscrews.

3.2 DOMESTIC WATER PIPING SYSTEM

- A. Provide a complete system of domestic water piping including interior and exterior work as indicated.
- B. Piping shall be accurately cut to measurements established at the project site, worked into place without springing or forcing, run as directly as possible, run parallel or perpendicular to building lines, located as indicated on the Drawings and supported as specified elsewhere. Parallel piping shall be grouped together as much as practical. Piping shall be supported as high as practical. Piping not located in mechanical rooms shall be concealed unless noted otherwise.
- C. Piping shall be run as directly as possible, avoiding all unnecessary fittings and joints. Changes in routing of piping due to field conditions shall be at the expense of this Contractor.
- D. Contractor shall provide for expansion and contraction of piping systems. Expansion and contraction of piping shall not impart excess stress or strain on the building, pipe fittings, joints or connections to equipment.
- E. Piping shall be installed with sufficient spacing between fittings, valves, flanges, etc. so as to allow insulation fittings to be installed without trimming or modification.
- F. All exposed piping shall be rigidly supported to eliminate movement.

3.3 STERILIZATION OF DOMESTIC WATER PIPING SYSTEM

- A. Thoroughly flush for a minimum of two hours and then drain the domestic water piping prior to sterilizing by the following method or other methods satisfactory to the Engineer and the Authority Having Jurisdiction.
- B. Fill piping with a solution containing 50 ppm of available chlorine. Open and close all valves to thoroughly distribute solution thru all piping. Allow solution to stand for 24 hours then test for residual chlorine at the ends of the lines. If less than 25 ppm is indicated, repeat the sterilization process. When tests show at least 25 ppm of residual chlorine, flush out the system until all traces of chlorine are removed. Open and close all valves in system several times during flushing period.
- C. The Engineer reserves the right to test the water again at any time prior to final acceptance of the work and if found to be unsafe bacteriologically, to require the Contractor to rechlorinate the system until the water is proven equal to that supplied by the public system.
- D. Contractor shall arrange for laboratory testing for a bacteriological examination of potable water system at various locations. The samples shall be tested to meet requirement of city and shall not be of less quality than provided by city. Submit copy from testing agency prior to submitting for final payment.

- E. Minor work such as repairs or replacement of single fitting or valve, pre-clean and disinfect by immersion in solution of 300 ppm chlorine for 1 hour.

3.4 FINAL ACCEPTANCE

- A. Before final acceptance, the Plumbing Contractor shall furnish a certificate of inspection and final approval from the plumbing Inspector to the Owner and be in accordance with the latest revisions of the applicable codes and the Approved Plumbing Drawings and Specifications. Contractor shall also furnish booklet of test, sterilization compliance and backflow devices certificates.

END OF SECTION

SECTION 23 05 00

MECHANICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The other Contract Documents complement the requirements of this Section. The General Requirements apply to the work of this Section.

1.02 SCOPE OF WORK

- A. The Work shall include the furnishings of systems, equipment, and materials specified in this Division and as required by Contract Documents to include: supervision, operation, methods, and labor for the fabrication, installation, start-up, and tests for the complete mechanical installation.
- B. Drawings for the Work are diagrammatic, intended to convey the scope of the Work and to indicate the general arrangement and locations of the Work. Because of the scale of the Drawings, certain basic items such as pipe fittings, access panels, and sleeves may not be shown. This Contractor shall be responsible for selecting the equipment to fit the space provided. The location and sizes for ductwork, pipe fittings, sleeves, inserts, and other basic items required by code and other sections shall be coordinated and included for the proper installation of the work.
- C. Equipment Specification may not deal individually with minute items required such as components, parts, controls, and devices which may be required to produce the equipment performance specified or as required to meet the equipment warranties. Where such items are required, they shall be included by the supplier of the equipment, whether or not specifically called for in the Contract Documents.
- D. Where the words "provide", "furnish", "include", or "install" are used in the Specification or on the Drawings, it shall mean to furnish, install, and test complete and ready for operation, the items mentioned. If an item is indicated in the Contract Documents, it shall be considered sufficient for including same in the work.
- E. Where noted on the Drawings or where called for in other Sections of the Project Manual, the Contractor for this Division shall install equipment furnished by Others, and shall make required service connections. Contractor shall verify with the supplier of the equipment the requirements for the installation.
- F. Coordinate with all trades in submittal of shop drawings. Shop drawings shall be prepared clearly indicating all applicable components. Space conditions shall be detailed to the satisfaction of all concerned trades, subject to review and final acceptance by the Engineer. In the event that the Contractor installs his work before coordinating with other trades or so as to cause any interference with work of other trades, the necessary changes shall be made in the work to correct the condition, at no additional cost to the Owner.

1.03 CODES AND STANDARDS

- A. Conform to latest edition of governing codes, ordinances, or regulations of city, county, state, or utility company having jurisdiction. Where local codes are not applicable, conform to Standard Plumbing Code; Standard Mechanical Code; Standard Fire Prevention Code and National Electrical Code.

1.04 CONTRACTOR'S QUALIFICATIONS

- A. The qualifications of the Mechanical Contractor for this project shall be as follows:
 - 1. The Contractor shall have been in the mechanical contracting business for the last five (5) consecutive years and under their current corporation name with essentially the same corporate officers.
 - 2. The Contractor shall have successfully completed at least two projects of comparable size and scope.
 - 3. The Contractor's main office shall be located within 100 miles driving distance of the project. If the Contractor's office is located more than 100 miles from job site, the Contractor shall submit for approval, 10 working days prior to bidding the job, the name of the service company within a 100 mile radius of the job site, who will be responsible for any/all service required during the warranty period. In either case, the Contractor shall be responsible for having a qualified technician on the job site within 4 hours after receiving a service call.
 - 4. When requested, the contractor shall provide substantiating proof of these requirements.

1.05 FEES, PERMITS, AND INSPECTIONS

- A. Secure all permits and pay all fees required in connection with the Work.
- B. Coordinate and provide such inspections as are required by the Authorities with jurisdiction over the site.
- C. Where applications are required for procuring of services to the building, prepare and file such application with the Utility Company. Furnish all information required in connection with the application in the form required by the Utility Company.

1.06 ACTIVE SERVICES

- A. Existing active services; water, gas, sewer, electric, are to be located and shall be protected against damage. Do not prevent or disturb operation of active services which are to remain. If active services are encountered which require relocation, make request to authorities with jurisdiction for determination of procedures. Where existing services are to be abandoned, they shall be terminated in conformance with requirements of the Utility or Municipality having jurisdiction.

1.07 SITE INSPECTION

- A. Contractor shall inspect the site to familiarize himself with conditions of the site which will affect his work and shall verify points of connection with utilities, routing of outside piping to include required clearances from any existing structures, trees or other obstacles.
- B. Extra payment will not be allowed for changes in the Work required because of Contractor's failure to make this inspection.

1.08 OPENINGS, CUTTING, AND PATCHING

- A. Coordinate the placing of openings in the new structure as required for the installation of the Mechanical Work.
- B. When additional patching is required due to failure to inspect work; then provide the patching required to properly close the openings, to include patch painting.
- C. When cutting and patching of the structure is made necessary due to failure to install piping, ducts, sleeves, or equipment on schedule, or due to failure to furnish, on schedule, the information required for the leaving of openings, then provide the cutting and patching as required.

1.09 WIRING FOR MECHANICAL EQUIPMENT

- A. Division 26 shall provide power services for motors and equipment furnished by this Contractor to include safety disconnect switches, starters and final connections.
- B. Division 23 shall provide all motors and contactors for equipment furnished under this Division, except where they are an integral part of a motor control center which is provided under another Division.
- C. Provide internal wiring, alarm wiring including for fire protection and/or security, control wiring, and interlock wiring for equipment furnished, to include temperature control wiring.
- D. Coordinate with Division 26 all motors and other mechanical equipment which require electrical services. Provide schedule which shall include the exact location for rough-in, electrical load, size, and electrical characteristics for all services required.
- E. Where motors or equipment furnished require larger services or services of different electrical characteristics than those called for on the Electrical Drawings, this contractor shall coordinate with the electrical contractor and the Electrical Engineer to provide a larger service as required, the cost of which shall be the responsibility of this contractor.
- F. Electrical work provided under Division 23 shall conform to the requirements of Division 26.

1.10 SUBSTITUTIONS

- A. Any equipment submitted as "equal" to the basis of design shall be accompanied with a comparison letter from the vendor stating any differences from the equipment being submitted and the basis of design. A letter is also to be submitted from the vendor, on the vendor's letterhead, stating that the vendor has received a copy of the job specifications, all addendums and any necessary drawings.

- B. Substitutions for the scheduled and specified equipment shall only be done with the prior approval of the engineer, and shall be obtained in writing. Prior approvals shall be obtained no less than ten working days prior to the bid date. Prior approval shall not relieve the contractor of supplying equipment that meets the specifications, capacities, efficiencies, physical dimensions, etc.

1.11 PROTECTION

- A. Special care shall be taken for the protection of equipment furnished. Equipment and material shall be completely protected from weather elements, painting, plaster, etc. until the project is completed. Damage from rust, paint, scratches, etc. shall be repaired as required to restore equipment to original condition.
- B. Where the installation or connection of equipment requires work in areas previously finished by other Contractors, the area shall be protected and not marred, soiled, or otherwise damaged during the course of such work. Contractor shall arrange with the other Contractors for repairing and refinishing of such areas which may be damaged.
- C. When welding is required inside building, provide one man for a fire watch. Fire watch shall require adequate protection of existing surfaces and observance of lower floors where penetrations exist.

1.12 SUBMITTALS

- A. General
 - 1. Submit to Engineer shop drawings and product data required by the drawings and specifications.
 - 2. Contractor shall compile all data including but not limited to ductwork materials and construction details, ductwork layout, manufacturers catalog and product data, controls wiring diagrams and material data, piping, insulation, water treatment, and test and balance.
 - 3. Submit a minimum of 7 copies of data, more if required by the Architect.
- B. Submittal Requirements
 - 1. Prepare submittals compiled in a 3 ring, hard bound, loose leaf binder. The face of the binder shall be clearly marked with the project title and number, the name of the Owner, Architect, Engineer, General Contractor and this contractor.
 - 2. The first page inside the binder shall provide an index, numerically indicating all sections applicable to this submittal.
 - 3. Separate binders shall be provided for HVAC, plumbing and fire protection trades.
 - 4. Provide tab dividers for each section submitted. In the event an item appears on the drawings not specifically covered by the specifications, provide an additional numeric

tab at the end of the index detailing the item and include the submittal data in the binder.

5. All equipment included on the submittal sheets shall be marked to indicate the "Tag" name or number of the equipment as shown on the drawings. The equipment shall be high-lighted, where necessary, to clarify which items are being submitted.
6. For the ductwork submittals, the contractor will be provided with an electronic copy of the mechanical floor plans. Ductwork layout submittals shall consist of one copy on a reproducible medium such as mylar. The drawings shall be on standard size sheets of 24" x 36" or 30" x 42". The reproducible copy shall be returned to the contractor with the engineers approval stamp and comments.
7. Submit only complete project submittals. Partial submittals or submittals not complying with the above requirements shall be returned to the contractor un-marked and rejected.
8. In the interest of project expediency the contractor may pre-submit long lead items for pre-approval. However, the contractor shall not be relieved of including the same data as required by submittal binder and shall be included therein.
9. The Contractor may turn in submittals without control drawings if they require a longer production time. All other items shall be included.
10. Provide a tab for items not included and include an explanation of why item is not included in the submittal and the expected submittal date.
11. Review shop drawings and product data prior to submission to Engineer.
12. Verify field measurements, field construction criteria, catalog numbers, and similar data.
13. Coordinate each submittal with work of the project and Contract Documents.
14. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Engineer's review of submittals, unless Engineer gives written acceptance of specific deviations.
15. Notify Engineer in writing of deviations from requirements of Contract Documents at time submittals are made. A "deviation" shall be construed to mean a minor change to the sequence indicated on drawings or specification. A "deviation" is not intended to allow substitutions or product options.
16. Do not begin work which requires submittals until submittals have been returned with Engineer's stamp and initials or signature indicating review and approval. Materials and equipment that were installed prior to being not approved shall be removed and replaced with approved items at no additional cost to other parties.
17. Shop Drawings and/or submittals requiring resubmission to the Engineer due to non-compliance with the Contract Documents and/or incompleteness shall be thoroughly

reviewed by the Contractor prior to delivery to the Engineer for review. The Contractor shall ensure the completeness and compliance of the submittal materials and shall reimburse the Engineer at their standard hourly billing rates for review of submittals/shop drawings beyond the second submission.

18. Attention is directed to the fact that Engineer's review is only to check for general conformance with the design concept of the project and general compliance with Contract Documents. No responsibility is assumed by Engineer for correctness of dimensions, details, quantities, procedures shown on shop drawings or submittals.
19. Omission in shop drawings of any materials indicated in Contract Drawings, mentioned in Specifications, or required for proper execution and completion of Work, does not relieve the Contractor from responsibility for providing such materials.
20. Approval of a separate or specified item does not necessarily constitute approval of an assembly in which item functions.

1.13 OPERATING AND MAINTENANCE MANUALS

A. General

1. Provide three up-to-date copies of shop drawings, product data, and other information described in this Section for use in compiling operating and maintenance manuals.
2. Provide legible submittals made by permanent reproduction copy equipment from typewritten or typeset originals.
3. Pre-punch 8-1/2 inch x 11 inch sheets for standard three ring binders.
4. Submit larger sheets in rolled and protected packages.

B. Compilation

1. The Contractor will receive shop drawings, brochures, materials lists, technical data of all types, warranties, guarantees, and other pertinent information and will assemble, catalog, and file information in loose-leaf, hardback three-ring binders.
2. Submittal Format: (Provide each of the following items, as applicable, for each required item or system. Requirements will vary, depending on the equipment. Refer to specific Specification section requirements.)
 - a. Item: (Use appropriate Section title.)
 - b. System Description: (Provide a detailed narrative description of each system, describing function, components, capacities, controls and other data specified, and including the following:

(1.) Number of.

- (2.) Sizes.
- (3.) Type of operation.
- (4.) Detailed operating instructions, including start-up and shut-down of each system, with indications for position of all controls, as applicable.
- (5.) Wiring Diagrams: (Complete wiring diagrams for internally wired components including controls.)
- (6.) Operating Sequence: (Describe in detail.)
- (7.) Manufacturers Data: (Provide catalog data sheets, specifications, nameplate data and parts list.)
- (8.) Preventative Maintenance: (Provide manufacturer's detailed maintenance recommendations.)
- (9.) Trouble Shooting: (Provide manufacturer's sequence for trouble-shooting procedures for operational problems.)
- (10.) Extra Parts: (Provide a listing of extra stock parts furnished as part of the Contract.)
- (11.) Warranties: (Provide specific manufacturer's warranty. List each component and control covered, with day and date warranty begins, date of expiration, and name, address and telephone number of person to contact regarding problems during warranty period.)
- (12.) Directory: (Provide names, addresses and telephone numbers of Contractor, its subcontractors, suppliers, installers and authorized service and parts suppliers. Format as follows:
Contractor:
Address:
Telephone No.:
Person to Contact:

Subcontractor:
Address:
Telephone No.:
Person to Contact:

Installer:
Address:
Telephone No.:
Person to Contact:

Manufacturer:
Address:

Telephone No.:
Person to Contact:

Local Service Representative:
Address:
Telephone No.:
Person to Contact:

1.14 RECORD DRAWINGS

- A. Detailed Requirements for Record Drawings
1. During the progress of the work, the Contractor shall require the job superintendent for the plumbing, air conditioning, heating, ventilating, and fire protection subcontractors to record on their field sets of drawings the exact locations, as installed, of all conduits, pipes, and ducts whether concealed or exposed which were not installed exactly as shown on the contract drawings.
 2. The Contractor shall submit redline as-built drawings to the Engineer for review.
 3. The Engineer shall authorize the Contractor to produce and distribute the redline as-built drawings in PDF format as follows:
 - a. One (1) Computer Disc (CD) to the Engineer.
 - b. One (1) CD to the Architect.
 - c. Three (3) hard copies full size
 - d. Two (2) CD to the Owner.

1.15 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. For products specified only by reference standard, select product meeting that standard, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any one of products and manufacturers named which complies with specifications.
- C. For products specified by naming several products or manufacturers and stating "or equivalent", "or equal", or "or Engineer approved equivalent", or similar wording, submit a request for proposed substitutions for any product or manufacturer which is not specifically named; for review and approval by the Engineer.
- D. For products specified by naming only one product and manufacturer, there may be an option of an Engineer approval of a product of equal or greater quality or size.

1.16 SUBSTITUTION SUBMISSIONS

- A. Contractor's Base Bid shall be per contract documents.

- B. Submit separate request for each substitution. Support each request with:
1. Complete data substantiating compliance of proposed substitution with requirements stated in contract documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - (1.) Product description.
 - (2.) Reference standards.
 - (3.) Performance and test data.
 - c. Name and address of at least two similar projects on which product has been used, and date of each installation.
 - d. Itemized comparison of the proposed substitution with product specified; list significant variations.
 - e. Data relating to changes in construction schedule.
 - f. Any effect of substitution on separate contracts.
 - g. List of changes required in other work or products.
 - h. Designation of availability of maintenance services, sources of replacement materials.
 - i. Provide certification of product compatibility with adjacent materials.
- C. Substitutions will not be considered for acceptance when:
1. They are indicated or implied on shop drawings or product data submittals without a formal request from Contractor or his supplier prior to bid.
 2. Acceptance will require substantial revision of contract documents.
 3. In judgement of Engineer, do not include adequate information necessary for a complete evaluation.
 4. Substitute products shall not be ordered or installed without written acceptance of Engineer.
 5. Engineer will determine acceptability of proposed substitutions.

1.17 CONTRACTOR'S SUBSTITUTION RESPONSIBILITIES

- A. In making formal request for substitution, Contractor represents that:

1. He has investigated proposed product and has determined that it is equivalent to or superior in all respects to that specified.
 2. He will provide same warranties or bonds for substitution as for product specified.
 3. He will coordinate installation of accepted substitution into the work, and will make such changes as may be required for the work to be complete in all respects. This includes revisions due to changes in electrical characteristics, physical size and weight, service requirements, service clearances, etc.
 4. He waives claims for additional costs caused by substitution which may subsequently become apparent.
- B. The contractor shall have included all costs associated with the substitution for the specified products or materials, and that no additional cost will be incurred by any other party in order to fully incorporate the substituted item(s).
- C. The contractor agrees to reimburse the Architect/Engineer for any architectural or engineering re-design that is required by the substitution to be fully incorporated. The reimbursement shall be at the Architect/Engineer's standard billing rate.

1.18 ENGINEER DUTIES

- A. Review Contractor's requests for substitutions with reasonable promptness.
- B. Notify Contractor in writing of decision to accept or reject requested substitution.

1.19 FINISHING

- A. General: Prior to acceptance of the installation and final payment of the Contract, the Contractor shall perform the work outlined herein.
- B. Cleaning: At the conclusion of the construction, the site and structure shall be cleaned thoroughly of all debris and unused materials remaining from the mechanical construction. All closed off spaces shall be cleaned of all packing boxes, wood frame members, and other waste materials used in the mechanical construction.
- C. The entire system of piping and equipment shall be cleaned internally. The Contractor shall open all dirt pockets and strainers, completely blowing down as required and clean strainer screens of all accumulated debris.
- D. All tanks, fixtures, and pumps shall be drained and proven free of sludge and accumulated matter.
- E. All temporary labels, stickers, etc., shall be removed from all fixtures and equipment. (Do not remove permanent name plates, equipment model numbers, ratings, etc.). All HVAC equipment shall have affixed adjacent to the permanent nameplate, the unit identification on an engraved label with permanent adhesive.

- F. Heating and air conditioning equipment, tanks, pumps, etc., shall be thoroughly cleaned and new filters or filter media installed.

1.20 TEST AND DEMONSTRATIONS

- A. Systems shall be tested and placed in proper working order prior to demonstrating systems to Owner.
- B. Prior to acceptance of the mechanical installation, demonstrate to the Owner or his designated representatives all essential features and functions of all systems installed, and instruct the Owner in the proper operation and maintenance of such systems. The contract shall allow for five (5) working days to perform the demonstrations.
- C. Provide necessary trained personnel to perform the demonstrations and instructions. Provide manufacturer's representatives for systems as required to assist with the demonstrations.
- D. Dates and times for performing the demonstrations shall be coordinated with the Owner.
- D. Upon completion of demonstrations, provide a certificate testifying that demonstrations have been completed. Certificate shall list each system demonstrated, dates demonstrations were performed, names of parties in attendance, and shall bear signatures of contractor and owner.
- E. Training shall include audio/video recording in DVD format turned over to the owner as part of closeout documents.

1.21 PAINTING AND IDENTIFICATION

- A. Touch-up paint where damaged on equipment furnished with factory applied finish, to match original finish.
- B. Provide engraved, laminated plastic tags for all equipment. Tags shall be attached with permanent adhesive.

1.22 EXCAVATING, TRENCHING, AND BACKFILLING

- A. Provide excavation necessary for underground water piping, etc., and backfill such trenches and excavations after work has been installed and tested. Care shall be taken in excavating, that walls and footings and adjacent load bearing soils are not disturbed, except where lines must cross under a wall footing. Where a line must pass under footing, the crossing shall be made by the smallest possible trench to accommodate the pipe. Excavation shall be kept free from water by pumping if necessary. No greater length of trench shall be left open, in advance of pipe and utility laying, than that which is authorized.
- B. Trenches for piping and utilities located inside foundation walls and to point five (5) feet outside of the wall shall be not less than sixteen (16) inches or more than twenty-four (24) inches wider than the outside diameter of the pipe to be laid. The widths of trenches for piping and utilities located more than five (5) feet outside of building foundation walls, other than for sewers, shall be governed by conditions found at the site.

- C. Bottoms of trenches shall be so shaped that when pipe is in place the lower fourth of the circumference for the full length of the barrel will be supported on compacted fill. Bell holes shall be dug so that no part of the weight of the pipe is supported by the bell but shall be no larger than necessary for proper jointing. All sewers and piping required for the structure shall be excavated to at least (6) inches below pipe invert.
- D. Immediately after testing and/or inspection, the trench shall be carefully backfilled with earth free from clods, brick, etc., to a depth one-half the pipe diameter and then firmly puddled and tamped in such a manner as not to disturb the alignment or joints of the pipe. Thereafter, the backfill shall be puddled and tamped every vertical foot.

1.23 CONCRETE WORK

- A. Provide concrete bases and housekeeping pads for mechanical equipment unless indicated otherwise. Concrete work shall be as specified in the applicable Civil/Site and Structural Sections. Vibration pads, equipment bases, pipe supports and thrust blocks shall be provided by this Contractor.
- B. Provide equipment anchor bolts and coordinate their proper installation and accurate location.

1.24 ACCESS PANELS

- A. Provide access panels where required and not shown on the drawings for installation by the drywall Contractor. Access panels shall be as specified in the applicable architectural section. All access panel locations which allow access to mechanical equipment shall be approved by the Architect/Engineer.

1.25 SLEEVES

- A. Sleeves passing through non-fire rated walls and partitions shall be Schedule 10 black steel.
- B. Sleeves passing through load bearing walls, concrete beams, foundations, footings, and waterproof floors shall be Schedule 40 galvanized steel pipe or cast iron pipe.
- C. Sleeves passing through non-load bearing walls, concrete beams, foundations, footings, and waterproof floors shall be Schedule 40 PVC or cast iron.
- D. Sleeves for insulated piping shall be of sufficient internal diameter to take pipe and insulation and to allow for free movement of pipe. Waterproof sleeves shall be of sufficient internal diameter to take pipe and waterproofing material.
- E. In finished areas where pipes are exposed, sleeves shall be terminated flush with wall, partitions, and ceilings, and shall extend 1/2" above finished floors. Extend sleeves 1" above finished floors in areas likely to entrap water.
- F. Pipe to wall penetration closures for underground pipe penetrations of walls shall be "Link-Seal" as manufactured by Thunderline Corporation, or equal.

1.26 ESCUTCHEONS

- A. Provide chrome plated escutcheons at each sleeved opening into finished and stainless steel to exposed exterior spaces. Escutcheons shall fit around insulation or around pipe when not insulated; outside diameter shall cover sleeve. Where sleeve extends above finished floor, escutcheon shall be high cap type and shall clear sleeve extension. Secure escutcheons or plates to sleeve but not to insulation with set screws or other approved devices.

1.27 INSULATION PROTECTION

- A. Where exposed insulated piping extends to floor, provide sheet metal guard around insulation.

1.28 ANCHORING OF EQUIPMENT

- A. All equipment located on floor slab, that is not mounted on wheels and is capable of being moved shall be secured to the floor with anchor bolts. A minimum of two bolts are required per each piece of equipment and bolts shall be of sufficient size to prevent equipment from overturning.

1.29 PROTECTION OF ELECTRICAL EQUIPMENT

- A. Water piping shall not be installed in electrical rooms or directly above electrical equipment.

1.30 CONNECTIONS FOR FIXTURES AND EQUIPMENT UNDER ANOTHER SECTION OR BY OWNER

- A. Rough all equipment requiring connection to systems provided under this Division. Verify requirements and current locations before proceeding with work.
- B. Make all connections to equipment furnished under another Section or by owner as required to obtain complete and working systems.

1.31 SYSTEM GUARANTEE

- A. Work required under this Division shall include one-year guarantee. Guarantee by Contractor to Owner to replace for Owner any defective workmanship or material which has been furnished under contract at no cost to the Owner for a period of one year from date of substantial completion. Guarantee shall also include all reasonable adjustments of system required for proper operation during guarantee period. Guarantee shall not include normal preventative maintenance services or filters.
- B. At "Demonstration", one-year guarantee provision by Contractor shall be explained to Owner.
- C. All sealed hermetic refrigeration systems shall be provided with five-year factory warranty from date of substantial completion

END OF SECTION

SECTION 23 07 30

INSULATION FOR HOT WATER HYDRONIC SYSTEM

PART I - GENERAL

1.01 WORK INCLUDED:

- A. Work of this section shall include providing the thermal insulation for mechanical systems and shall include the following principal items:
 - 1. Hot Water System Insulation
 - 2. Makeup cold water assemblies and piping to system shall be insulated as specified in Section 23 07 32, 3.02, B.
- B. This work shall be performed by a competent insulation contractor whose primary business is the installation of insulation systems and who has been in this business for a minimum of five years.

1.02 SUBMITTALS

- A. Provide submittals consisting of product literature for each insulation type, finish type and equipment served. Provide submittals on method of installation for each type of insulation used.
- B. Product samples and installation samples are required and shall be provided at the discretion of the engineer. Samples may include but are not limited to, 90° Ells, 45° Ells, valves and sections of pipe.

PART 2 - PRODUCTS

2.01 THERMAL INSULATION

- A. All insulating systems shall be tested on a composite basis in accordance with NFPA and UL 723 and shall have a maximum flame spread rating of 25 and a maximum smoke developed rating of 50 under ASTM E-84.
- B. Interior piping Rigid Fiberglass - .23K Factor, 3# density, minimum R Factor 4.3 suitable for 850°F. Equal to Owens Corning - Fiberglass ASJ/SSL-11.

NOMINAL PIPE SIZES	INTERIOR	EXTERIOR ABOVE GROUND	EXTERIOR BELOW GRADE
1/2" - 2"	1"	1 1/2"	1"
2 1/2" - 8"	1 1/2"	2"	1 1/2"
8" And Above	2"	2 1/2"	2"

- C. Interior fittings 1/2" and 3/4" may use job built mitered fittings of similar materials as piping. 1" and up will use factory precision pre-cut, preformed and routed to fit predetermined size.
- D. Above ground exterior piping shall be equal to Foamglass - .33K factor suitable for 900° F, 8.5# Density per square foot. Equal to Pittsburgh Corning-Strata Fab System with ASJ jacket.
- E. Fittings for above ground exterior piping shall be machine formed, routed and fitted for specific size fitting and of same material as in D.
- F. Below ground exterior piping shall be of same material as in D. without the ASJ Jacketing.
- G. Below ground exterior fittings shall be machine formed, routed and fitted for specific size fitting and of same material as in E.

2.02 Insulation Finish Materials

- A. White all service jacket (ASJ).
- B. Glass fabric equal to Foster Mast-A-Fab.
- C. Mastic equal to Childers CP-30.
- D. Smooth aluminum, 0.016 inches thickness. Equal to Pabco.
- E. Aluminum fitting covers, precision formed, smooth and mar-free finish, 0.024 inches thickness. Equal to Pabco.
- F. Roofing felt 15 lbs.
- G. Black asphaltic cutback mastic for underground or outdoor use equal to Foster C.I. Mastic 60-25.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- A. All materials shall be applied by Workmen skilled in this trade. Unsightly work shall be cause for rejection.
- B. Mechanical fasteners shall be used whenever possible to assure permanent construction.
- C. Materials shall be applied only after systems have been tested and all surfaces are clean and dry.
- D. Cellular glass block supports or other suitable non-compressible insulation material equal in thickness to the insulation and three times the pipe diameter in length shall be installed at hangers to eliminate through-metal conductance. Provide 16 GA, 180 degree, galvanized sheet metal saddles same length as block supports.
- E. Insulation that becomes wet for any reason shall be removed, replaced and resealed at the expense of this Contractor.
- F. Piping systems requiring testing to be witnessed by the Engineer shall not be insulated until such systems have been tested and approved.
- G. Do not insulate batch type chemical feeders, valve handles, or any moving parts.

3.02 APPLICATIONS

A. Rigid Fiberglass Insulation

1. Piping

All insulation shall be butted together and securely stapled in place with outward clinching staples on 3" centers. Factory provided laps of 4" wide ASJ Tape of the same type as jacket on insulation shall be used on butt joints. All laps and penetrations shall be sealed with a vapor barrier mastic finish.

2. Fittings

Fitting insulation shall be covered with two coats of vapor barrier mastic with an intermediate layer of glass fabric.

3. Aluminum Jacket

All interior exposed pipe and fittings below 8'0" A.F.F. shall also be wrapped with 0.016 aluminum. Secure jacketing with 1/2" wide bands of aluminum on 12" O.C. and at each end of fittings.

B. Foamglass – A

1. Piping Above Grade

All insulation shall be applied over a clean dry surface. Factory provided laps of 4" wide ASJ tape of same type as jacket on insulation shall be used on butt joints. All laps and penetrations shall be sealed with a vapor barrier mastic finish.

2. Piping Below Grade

Underground piping insulation shall be applied over a clean dry surface. Provide 22 ga. galvanized wire at 12" O.C.. Cover insulation with two layers of 15 lb. asphalt impregnated felt and stagger joints at midpoint. Apply sealant at joints, laps and seams. Secure felt with wire at 12" O.C. with 22 ga. galvanized wire. Apply tack coat over felt at not less than 4 gal per 100 square feet. Embed cloth membrane into wet tack coat. Smooth membrane to avoid wrinkles and overlap seams at least 2". Apply a finish coat at 8 gallons per 100 square feet making certain that membrane is fully covered. Allow 8 hours of drying time before any piping is covered.

3. Piping above grade

All above grade piping shall be covered with aluminum. Aluminum shall be applied to a clean dry surface. Overlap butt joints 4" and apply 1/2" wide bands of aluminum on 12" O.C. and at each end of fittings. On exterior piping the longitudinal seam shall be located at the bottom center of piping and turned 1/4" down for a drip edge. All joints on exterior piping shall be made water tight with suitable silicone caulking. Caulking is to be applied to joints prior to bands being installed.

4. Fittings

Fitting insulation shall be covered with two coats of vapor barrier mastic with an intermediate layer of glass fabric.

3.03 MISCELLANEOUS

- A. This contractor will contact the engineer at the start of all phases of work as follows:

The University of Alabama in Huntsville
SWIRLL Roof Hatch
Project No. 18000A

23 07 30 - 4

INSULATION FOR HOT WATER HYDRONIC SYSTEM

1. During installation of underground installation of insulation.
 2. During exterior above ground installation.
 3. During interior insulation installation.
- B. The engineer will ascertain the continuation of work subject to the requirements aforementioned.

END OF SECTION

SECTION 23 21 10

HYDRONIC PIPING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide hydronic piping systems complete with all accessories as specified herein and/or as indicated on the Drawings.
- B. Provide complete cleaning of all hydronic systems as specified herein and/or as indicated on the Drawings.
- C. Pressure test all systems as specified herein.

1.2 REFERENCES

- American National Standards Institute (ANSI)
- American Society of Mechanical Engineers (ASME)
- American Society of Testing and Materials (ASTM)
- Hydronic Institute (HI)

1.3 SUBMITTALS

- A. Submit a list of pipe and fitting materials for each hydronic piping system.

PART 2 - PRODUCTS

2.1 PIPING

- A. General: The Contractor shall select one and only one of the following specified combinations of piping, fittings and joints from each category below for each service.

System Service	Above/Below Grade/Slab	Size	Piping/Fittings/ Joints
Recirculating Hydronic Water	Above Grade/Slab	>1-1/2"	a
Recirculating Hydronic Water	Above Grade/Slab	≤1-1/2"	d or e
Makeup Water	Above Grade/Slab	All	e
Fluid Cooler Chem. Trmt. Water	All	All	e
Recirculating Hydronic Water	Below Grade/Slab	>1-1/2"	c

Final Coil connections Hydronic Water	Above Grade/Slab	>1-1/2"	b
Final coil connections Hydronic Water	Above Grade/Slab	<u><1-1/2"</u>	d or e

Piping/Fitting/Joint Description

- a. Pipe: Schedule 40 black steel per ASTM A-53. Fittings: Forged steel welding type per ASTM A-234. Joints: Welded per ASME B31.9.
- b. Pipe: Type L hard drawn copper per ASTM B-88. Fittings: Wrought copper or cast brass. Terminations shall be flanged. Joints: Soldered with lead-free tin-silver solder.
- c. Pipe: Pre-insulated schedule 40 steel carrier pipe, HDPE outer casing and foamed in place closed-cell polyurethane foam insulation. Fittings: Factory prefabricated. Joints: Field welded and insulated per manufacturer's recommendations. Equal to Perma-Pipe, Insul-Tek or Insul-Pipe. See spec 232118.
- d. Pipe: Schedule 40 black steel per ASTM A-53. Fittings: 150 pound malleable iron per ANSI B16.3. Joints: Threaded per ANSI B2.1.
- e. Pipe: Type L hard drawn copper per ASTM B-88. Fittings: Wrought copper or cast brass. Joints: Soldered with lead free, tin silver solder.

NOTE:

1. Copper press fittings on above grade copper piping at the unit connections will be allowed. System shall be Rigid Tool Company "Pro-Press" system, factory copper fittings with EPDM O rings secured with factory approved crimping tools, jaws and crimp rings.

3.1 GENERAL

- A. Piping shall be accurately cut to measurements established at the project site, worked into place without springing or forcing, run as directly as possible, run parallel or perpendicular to building lines, located as indicated on the Drawings and supported as specified elsewhere. Parallel piping shall be grouped together as much as practical. Piping shall be supported as high as practical. Piping not located in mechanical rooms shall be concealed unless noted otherwise.
- B. Piping shall be run as directly as possible, avoiding all unnecessary fittings and joints. Changes in routing of piping due to field conditions shall be at the expense of this Contractor.
- C. Contractor shall provide for expansion and contraction of piping systems. Expansion and contraction of piping shall not impart excess stress or strain on the building, pipe fittings, joints or connections to equipment.
- D. Piping shall be installed with sufficient spacing between fittings, valves, flanges, etc. so as to allow insulation fittings to be installed without trimming or modification.
- E. Slope piping at a minimum slope of 1/8" per foot to ensure complete drainage. Provide drain valves with 3/4" hose thread connections and locking handles at all low points of piping.
- F. Provide sleeves for all piping penetrations of grade beams, floors above grade and walls.

All pipe sleeves shall be schedule 40 steel pipe. Sleeves for all uninsulated piping shall be sized to be 2" larger than the pipe and the annular space between the pipe and the sleeve shall be packed with rock wool or other similar material. Sleeves for insulated pipes shall be sized for the piping insulation. The sleeve shall be sealed with caulking to the wall, floor, etc. The packing and sleeves for below grade pipes shall be coated with water proof mastic on both sides of the construction. Rated walls shall have fire stopping.

- G. Provide escutcheon plates at each exposed piping penetration of walls and ceilings. Escutcheon plates for insulated piping shall be sized for the insulation diameter.
- H. Provide a poured-in-place concrete thrust block for all piping elbows where the piping goes from above grade or slab to horizontally below grade.
- I. All valves below grade shall be as listed in 2.3 A-3. All underground valves shall have valve boxes.
- J. If copper branch lines are elected to be used with steel pipe mains, the contractor shall separate the two using brass adaptor fittings.
- K. All equipment shall be installed with service isolation valves.

3.2 FLUSHING AND CLEANING OF HYDRONIC PIPING SYSTEMS

- A. All hydronic piping systems shall be chemically cleaned, flushed and refilled following successful pressure testing and before final balancing. Contractor shall notify the Engineer at least 3 days in advance of cleaning to allow the Engineer to observe the Work.
- B. Systems shall be pre-flushed and drained prior to chemically cleaning. The pump shall be operated at the design flow rate. Pre-flush for 2 hours then drain and clean all strainer screens. By-pass valves shall be installed at all heating and cooling coils to by-pass the coil and coil valve package during the flushing procedure.
- C. Not later than 48 hours after filling and leak testing, the cleaning and passivating chemical provided by the water treatment contractor shall be added to the system.
- D. Water with the cleaning and passivating chemicals in place shall be circulated for not less than 12 hours, nor more than 48 hours. While the system water is being circulated the pressure drop across the strainer shall be monitored. If the pressure increases during this time, the pump shall be stopped and the strainers shall be cleaned. Once the strainers are cleaned, the pump shall be restarted and the circulation continued for the proscribed period of time. This shall be repeated as required throughout the cleaning.
- E. After the cleaning period of circulation, the system shall be drained as completely as possible, the strainer screens cleaned and then the piping system flushed with clean water. Refill the system with clean water, circulate for 30 minutes and then drain and clean the strainer screens. This flush process shall be repeated until the flush water conductivity approximates that of the intended system make-up water.
- F. After the cleaning and flushing is completed and the system is refilled, the supply to return piping bypass hoses shall be removed and the coils, heat exchangers, control valves, strainers, etc. shall be piped into the piping system as shown in the drawing details. The system shall be refilled and vented to remove air.

END OF SECTION

SECTION 26 01 01 BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL REQUIREMENTS

1.1 RELATED DOCUMENTS

- A. The following codes and standards are referenced in this document.
 - 1. NFPA 70, National Electrical Code, 2014
 - 2. ASHRAE 90.1, Energy Standard for Buildings, 2013
 - 3. International Fire Code (IFC) 2015
 - 4. International Building Code (IBC) 2015
 - 5. Americans with Disabilities Act Accessibility Guidelines (ADAAG) 2010
- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SCOPE OF WORK

- A. Furnish and install complete electrical systems.
- B. Connect all power outlets, convenience outlets, switches and/or other equipment forming part of the system.
- C. Connect all electrical equipment noted in this Section or noted on Drawings, whether furnished by Electrical Contractor or by others.
- D. The electrical contractor shall review all sections of the contract documents (Plans and Specifications) and shall endeavor to determine all equipment requiring electrical power whether shown on the electrical plans or not. Notify the Electrical Engineer in writing prior to the bid with any discrepancies with mechanical and/or plumbing plans. Include in bid price all required materials and labor required for a full functioning system/building.
- E. Connect all mechanical and plumbing equipment as required to provide a full functioning system as specified by the Mechanical Engineer. Verify locations for all dampers (control dampers and fire/smoke dampers), circulating pumps, fans, boilers, water heaters and other loads with the mechanical and plumbing plans prior to bidding.
- F. Furnish and install all disconnect switches.
- G. Furnish and install power wiring and connection for starters and motors. Furnish and install all control wiring specifically shown on drawings or as required to make the system operational as designed.
- H. Procure and pay for permits and certificates as required by local and state ordinances and Fire Underwriters Certificate of Inspection.
- I. Submit to Architect, a certificate of Final Inspection from local inspection department.
- J. Work noted "NIC" (Not in Contract) shall be excluded from the work to be done by this trade, as follows:
 - 1. A complete System of Control Wiring for the Mechanical System (unless specifically shown on Drawings).
 - 2. Motors in place by others, connection for correct rotation by this trade.

1.3 DRAWINGS AND SPECIFICATIONS

- A. Electrical work shown on drawings inclusive. Follow any supplementary drawings as though listed above.
- B. Drawings and Specifications are complementary. Work called for by one is binding as if called for by both.
- C. Drawings show general run of circuits and approximate location of equipment. Right is reserved to change location of equipment and devices and routing of conduits to a reasonable extent, without extra cost to Owner.
- D. Refer conflicts between drawings and specifications describing electrical work and work under other Sections to Architect for remedial action.
- E. Use dimensions in figures in preference to scaled dimensions. Do not scale drawings for exact sizes or locations.
- F. Execution of Contract is evidence that Contractor has examined all drawings and specifications related to work, and is informed to extent and character of work. Later claims for labor and materials required due to difficulties encountered, which should have been foreseen had examination been made, will not be recognized.

1.4 EXISTING CONDITIONS

- A. The Contractor shall visit the site and determine all conditions that affect this Contract. Contractor shall include in bid price cost of relocating any electrical or auxiliary lines and/or equipment as required whether shown or not. Failure to do so will not relieve Contractor of his/her responsibility under this contract.

1.5 DEMOLITION

- A. Where electrical work to remain is damaged or disturbed in the course of the work, remove damaged portions and install new products of equal capacity, quality, and functionality.
- B. Accessible Work Indicated to Be Demolished: Remove exposed electrical installation in its entirety.
- C. Abandoned Work: Cut and remove buried raceway and wiring shown to be abandoned in place, 2 inches below the surface of adjacent construction. Cap and patch surface to match existing finish.
- D. Removal: All electrical equipment not specifically noted for re-use/connection shall remain property of the Owner. Store as directed by Architect/Owner.
- E. Temporary Disconnection: Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.

1.6 CONTRACTOR QUALIFICATIONS

- A. Qualified electrical contractors shall be prequalified by the Architect and Owner to bid this project.
- B. If the electrical contractor proposes to use any other subcontractor for the installation of any auxiliary system, etc., these Subcontractors shall be a factory-authorized distributor of the specified system and shall also meet the above qualifications before bid is acceptable.
- C. The Electrical Contractor shall be properly licensed (before the bid date) to bid and perform the project. This includes being a properly licensed general Contractor in the State of Alabama, such as having a State of Alabama General contractors License with the Major Classifications "Building Construction" (BC) and "Municipal & Utility" (MU), or a General Contractors License in "Specialty Construction" – Electrical (E), as applicable

- D. The Electrical Contractor shall use State of Alabama licensed masters and journeymen electricians as job superintendents. The Electrical Contractors superintendent (Journeyman or Master Electrician) shall be on site when electrical work is being performed. The Electrical Contractor shall have on Journeyman or Master Electrical on site for every eight (8) apprentices.
- E. The Electrical Contractor shall possess and provide proof of insurance with coverage and limits meeting or exceeding those prescribed under the laws of the State of Alabama for Liability and Workers' Compensation.

1.7 INSURANCE

- A. This contractor shall carry Workmen's Compensation Insurance, Public Liability Insurance and shall save Owner free from all damage from suits arising out of the performance of this Contract.

1.8 QUALITY ASSURANCE

- A. All work shall be in accordance with the NFPA 70 National Electrical Code NEC 2014 and the rules and regulations of the local bodies having jurisdiction.
- B. The published standards and requirements of the National Electrical Manufacturers Association, the American National Standard Institute, the Institute of Electrical and Electronic Engineers, and the American Society of Testing Materials, are made a part of these specifications and shall apply wherever applicable.
- C. Work under this Section shall be first class with emphasis on neatness and workmanship.
- D. Install work using competent mechanics under supervision of foreman, all duly certified by local authorities. Installation subject to Architect's constant observation, final approval, and acceptance. Architect may reject unsuitable work.
- E. Furnish Architect written guarantee, stating that if workmanship and/or material executed under this Section is proven defective within one (1) year after final acceptance, such defects and other work damaged will be repaired and/or replaced.
- F. In the event that project is occupied or systems placed in operation in several phases at Owner's request, guarantee will begin on date each system or item of equipment is accepted by the Owner.
- G. Listing and Labeling: Provide products specified in this Section that are listed and labeled. The Terms "Listed and Labeled": As defined in the National Electrical Code, Article 100.

1.9 ON-SITE OBSERVATIONS AND DEMONSTRATION OF FUNCTIONALITY

- A. Contractor shall notify Engineer at least three (3) days prior to covering any underground feeders, pouring slab, installing ceiling systems in order to allow time for on-site observations.
- B. At all observations of work, open panel covers, junction box covers, pull box covers, device covers, and other equipment with removable plates for check. Provide sufficient personnel to expedite cover removal and replacement.
- C. Contractor to assist Architect in demonstration of operation of new systems to satisfaction of Owner. Contractor to have manufacturer available for demonstration of systems where requested by Owner or as called for in other sections of this specification. Contractor shall notify Engineer and Architect two (2) weeks prior to demonstration of systems where manufacturer assistance is required.
- D. Perform test required by Architect to indicate compliance with specifications, drawings and applicable codes. Provide instruments, labor and materials for tests.

1.10 PROTECTION OF PERSONS AND PROPERTY DURING CONSTRUCTION

- A. Take all precautions to provide safety and protection to persons and protection of materials and property as necessary, including protection from injury from rotating or moving equipment, tools, hot surfaces, holes, shafts, falling objects, electrical energy and all other potential hazards. Erect sign, barricades, warning lights, instruct workmen and others who may be subject to construction hazards.
- B. Protect items of equipment from stain, corrosion, scratches and any other damage or dirt, whether in storage at job site or installed. No damaged or dirty equipment, lenses or reflectors will be accepted.

1.11 CHANGES ORDERS AND ADDITIONAL WORK

- A. No change shall be made from the work as called for by these specifications and drawings except on written order of the Architect. Deviations from drawings and specifications shall be made in submittal form and shall include all information for approval including drawings where required. No change for extra work will be allowed unless such extra work has been duly authorized by a written order of the Architect stating the change to be made.

1.12 SEQUENCING AND SCHEDULING

- A. Coordinate electrical equipment installation with other building components.
- B. Arrange for chases, slots, and openings in building structure during progress of construction to allow for electrical installations.
- C. Coordinate installing required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
- D. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning prior to closing in the building.
- E. Coordinate connecting electrical service to components furnished under other Sections.
- F. Coordinate connecting electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.
- G. Coordinate installing electrical identification after completion of finishing where identification is applied to field-finished surfaces.
- H. Coordinate installing electrical identifying devices and markings prior to installing acoustical ceilings and similar finishes that conceal such items.

1.13 AS-BUILT DRAWINGS

- A. Contractor to provide to owner at project completion the following:
 - 1. Two (2) compact disc/DVD volumes with color pdf files showing any/all deviations to the contract documents.
 - 2. One each set of electrical plans on reproducible media indicating any/all deviations to contract documents.
 - 3. Two each sets of electrical plans (blue prints) indicating any/all deviations to contract documents.
 - 4. There will be a \$100 service charge for electronic drawings. Submit your request in writing and include a check payable to Jack R. Morgan Engineering, Inc.

1.14 COORDINATION WITH OTHER TRADES

- A. Review all specification sections and drawings including HVAC, plumbing and other equipment drawings and other divisions of the specifications for equipment requiring electrical service. Provide service to and make connections to all such equipment requiring electrical service.
- B. Contractor to coordinate all aspects of mechanical equipment furnished and installed by others with approved equipment submittals prior to any roughing. It is the responsibility of this contractor to coordinate phase, voltage, minimum circuit amps and maximum over-current protective devices with approved submittals prior to roughing. Coordinate exact connection locations with the mechanical contractor prior to any roughing. Notify engineer in writing of discrepancies between the plans and the approved equipment data.
- C. Contractor to coordinate all aspects of plumbing equipment furnished and installed by others with approved equipment submittals prior to any roughing. It is the responsibility of this contractor to coordinate phase, voltage, minimum circuit amps and maximum over-current protective devices with approved equipment submittals prior to roughing. Coordinate exact connection locations with plumbing contractor prior to any roughing. Notify engineer in writing of discrepancies between the plans and the approved equipment data.
- D. Coordination Shop Drawings: Electrical contractor shall coordinate with other trades (structural, mechanical, plumbing, and fire protection) to determine the space required, and the routing and locations of their respective trades. Prepare shop drawings at $\frac{1}{4}'' = 1'-0''$ scale for all electrical rooms and rooms with electrical panels, main data frame room (MDF), intermediate data frame rooms (IDF), and corridors showing electrical, fire protection, mechanical, and plumbing work with elevations to equipment, conduit routing, and clearances for equipment noted. Failure to coordinate does not constitute a change order when components will not fit within the allocated space and may result in installed equipment and materials being removed at the contractor's expense.

PART 2 - ELECTRICAL PRODUCT REQUIREMENTS

2.1 SUBMITTALS AND MATERIALS DATA

- A. **For this project - all submittals under this division shall be provided in searchable PDF file format. All warranty materials and O&M manuals shall be provided in searchable PDF file format - NO EXCEPTIONS.**
- B. The approval of shop drawing shall not be interpreted as a complete check by the Engineer, but will indicate only that the general specifications for the equipment to be provided is satisfactory. Approval of such drawings does not relieve the contractor of responsibility of coordination of components, auxiliary equipment, accessories or special conditions required for satisfactory operation of the completed system.
- C. All shop drawings for a specific item shall be made in one submittal. No submittals will be checked until **all** required submittals are received by the Engineer. All submittals must be approved prior to commencing any work on this project.
- D. The electrical contractor shall check all suppliers' submittals regarding measurements, capacity, performance and details to satisfy him/herself that they conform to the intent of the contract drawings and specifications. Shop drawings and submittals shall bear the stamp of approval of the Contractor as evidence that the drawings have been checked by him. **Drawings submitted without this stamp of approval will not be considered and will be returned for contractor approval and stamp.** A minimum of ten (10) working days shall be allowed for checking for submittals.
- E. Any materials and equipment listed which are not in accordance with specification requirements may be rejected.
- F. All submittals shall clearly identify the item submitted. Standard catalog sheets shall be marked, in ink, so as to identify which item is to be considered. **All drawings submitted must be by factory as field drawings will not be accepted.**

2.2 ELECTRICAL PRODUCT SUBSTITUTIONS

- A. Any proposed substitution of equipment or materials from that specified must be submitted in writing to the Engineer within ten (10) days prior to the bid date. The Engineer will respond in writing as to the acceptance/rejection of the proposed product. Faxed transmittals, e-mails and verbal requests will not be considered.
- B. All proposed substitutions shall clearly identify the item submitted as well as the technical information that is called for in other portions of the Electrical Divisions of this Specification. Standard catalog sheets shall be marked, in ink, so as to identify which item is to be considered. All drawings submitted must be prepared by the factory as field drawings will not be accepted.
- C. Responses to proposed substitutions will be in writing and delivered U.S. mail. Include return mailing address in substitution request package.

2.3 SPECIAL PRODUCT INFORMATION

- A. For all major electrical materials this project, the equipment manufacturer shall prepare a project-specific materials information containing the following information related to their products:
 - 1. General Contractor's name and contact information
 - 2. Electrical Contractor's name and contact information
 - 3. Distributor's name and contact information
 - 4. Job Name - location (City and State)
 - 5. Bill of Material
 - 6. Manufacturer's signed statement of compliance with required product warranties (see individual specification sections)

PART 3 - EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 26 05 19 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Building wires and cables rated 600 V and less.
 - 2. Connectors, splices, and terminations rated 600 V and less.

1.3 DEFINITIONS

- A. VFC: Variable frequency controller.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Alcan Products Corporation; Alcan Cable Division.
 - 2. Encore Wire Corporation.
 - 3. General Cable Technologies Corporation.
 - 4. Southwire Incorporated.
- B. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.
- C. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2, Type XHHW-2, and Type SO.

2.2 CONNECTORS AND SPLICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Hubbell Power Systems, Inc.
 - 3. Ideal Industries, Inc.
 - 4. O-Z/Gedney; a brand of the EGS Electrical Group.

5. 3M; Electrical Markets Division.
 6. Tyco Electronics.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper for feeders with ampacity less than 400 amps, Aluminum for feeders equal or greater than 400 amps. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND WIRING METHODS

- A. Exposed Branch Circuits, Including in Crawlspace: Type THHN-2-THWN-2, single conductors in raceway.
- B. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway. Apartment Branch Circuits Concealed in space above accessible ceilings, Walls, and Partitions: Type MC, metal-clad cable (# conductors as required with ground conductor).
- C. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 26 05 33 "Raceways and Boxes" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 26 05 29 "Hangers and Supports for Electrical Systems."
- G. Provide and install conductor supports for conductors in vertical risers per NEC Table 300.19. Cable support shall be provided at top of vertical runs and at other locations required to limit distance between supports to values shown in the referenced table. Products shall be equal to OZ Gedney, Type S, 600V, Indoor.

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 IDENTIFICATION

- A. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to IBC 711 and 712, latest revision."

3.7 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance conductors, all panelboard feeder conductors and conductors feeding the following critical equipment and services for compliance with requirements.
 - a. Generator Set.
 - b. Uninterruptible Power Supplies.
 - 2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
- B. Test and Inspection Reports: Prepare a written report to record the following:
 - 1. Procedures used.
 - 2. Results that comply with requirements.
 - 3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION

SECTION 26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes: Grounding systems and equipment.
- B. Section includes grounding systems and equipment.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

- A. Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:
 - 1. Test wells.
 - 2. Ground rods.
 - 3. Ground rings.
 - 4. Grounding arrangements and connections for separately derived systems.
 - 5. Grounding for sensitive electronic equipment.
 - 6. Grounding equipment enclosures.
- B. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals to include the following:
 - 1. Instructions for periodic testing and inspection of grounding features at test wells ground rings grounding connections for separately derived systems based on NETA MTS.
 - a. Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.
 - b. Include recommended testing intervals.

1.6 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.
- C. Comply with NFPA 70, Section 250 (National Electrical Code) for grounding and bonding.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Tinned Conductors: ASTM B 33.
 - 4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
 - 5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
 - 7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
- C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 12 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V. Lexan or PVC, impulse tested at 5000 V.

2.2 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, pressure type with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- D. Bus-bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch diameter by 10 feet in length.
- B. Chemical-Enhanced Grounding Electrodes (where required to achieve specified grounding system resistance values): Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.
 - 1. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches long.
 - 2. Backfill Material: Electrode manufacturer's recommended material.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

- B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.
 - 1. Bury at least 24 inches below grade.
- C. Grounding Bus: Install in electrical and telephone/IT equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
 - 1. Install bus on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.
 - 2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down to specified height above floor; connect to horizontal bus.
- D. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
- B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1. Feeders and branch circuits.
 - 2. Lighting circuits.
 - 3. Receptacle circuits.
 - 4. Single-phase motor and appliance branch circuits.
 - 5. Three-phase motor and appliance branch circuits.
 - 6. Flexible raceway runs.
 - 7. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
 - 8. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.
- C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- D. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

- E. Signal and Communication Equipment: In addition to grounding and bonding required by NFPA 70, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A.
 - 1. For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
 - 2. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4-by-12-inch grounding bus.
 - 3. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.
- F. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Bonding Common with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.
- C. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
 - 2. For grounding electrode system, install at least three rods spaced at least two-rod lengths from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
 - 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
- E. Grounding and Bonding for Piping:
 - 1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect

- grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- F. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.
- G. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet apart.
- H. Ufer Ground (Concrete-Encased Grounding Electrode): Fabricate according to NFPA 70; use a minimum of 20 feet of bare copper conductor not smaller than No. 4 AWG.
1. If concrete foundation is less than 20 feet long, coil excess conductor within base of foundation.
 2. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building's grounding grid or to grounding electrode external to concrete.

3.4 LABELING

- A. Install labels at the telecommunications bonding conductor and grounding equalizer and at the grounding electrode conductor where exposed.
1. Label Text: "If this connector or cable is loose or if it must be removed for any reason, notify the facility manager."

3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
 3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, at ground test wells, and at individual ground rods. Make tests at ground rods before any conductors are connected.
 - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81.
 4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and

their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

- C. Grounding system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.
- E. Report measured ground resistances that exceed the following values:
 - 1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
 - 2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
 - 3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
 - 4. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).
- F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION

SECTION 26 05 29 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. IMC: Intermediate metal conduit.
- C. RMC: Rigid metal conduit.
- D. MC: Metal-clad, multi-conductor cable

1.4 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- C. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- D. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.5 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Steel slotted support systems.
 - 2. Nonmetallic slotted support systems.
- B. Shop Drawings: Signed and sealed by a qualified professional engineer. Show fabrication and installation details and include calculations for the following:
 - 1. Trapeze hangers. Include Product Data for components.
 - 2. Steel slotted channel systems. Include Product Data for components.
 - 3. Nonmetallic slotted channel systems. Include Product Data for components.
 - 4. Equipment supports.

1.6 INFORMATIONAL SUBMITTALS

- A. Welding certificates.

1.7 QUALITY ASSURANCE

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

1.8 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified together with concrete Specifications.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Tyco International, Ltd.
 - g. Wesanco, Inc.
 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 3. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
2. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
3. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
5. Toggle Bolts: All-steel springhead type.
6. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements specified elsewhere "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 1. Secure raceways and cables to these supports with two-bolt conduit clamps.
- D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

- B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
 - 6. To Light Steel: Sheet metal screws.
 - 7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements specified elsewhere "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Touchup: Comply with requirements specified elsewhere in these specifications for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 26 05 33 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Metal conduits, tubing, and fittings.
 - 2. Non-metal conduits, tubing, and fittings.
 - 3. Metal wireways and auxiliary gutters.
 - 4. Non-metal wireways and auxiliary gutters.
 - 5. Surface raceways.
 - 6. Boxes, enclosures, and cabinets.
 - 7. Hand holes and boxes for exterior underground cabling.

1.3 DEFINITIONS

- A. ARC: Aluminum rigid conduit.
- B. GRC: Galvanized rigid steel conduit.
- C. IMC: Intermediate metal conduit.

1.4 ACTION SUBMITTALS

- A. Product Data: For all products specified in this section.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: **Conduit routing plans for electrical rooms, IDF rooms and typical corridor sections, drawn to scale**, on which the following items are shown and coordinated with each other, using input from installers of items involved:
 - 1. Structural members in paths of conduit groups with common supports.
 - 2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.
- B. Contractor to coordinate in writing with mechanical, plumbing and fire protection contractors for space above accessible ceilings in corridors.
- C. Qualification Data: For professional engineer.
- D. Seismic Qualification Certificates: For enclosures, cabinets, and conduit racks and their mounting provisions, including those for internal components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
 4. Detailed description of conduit support devices and interconnections on which the certification is based and their installation requirements.
- E. Source quality-control reports.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AFC Cable Systems, Inc.
 2. Allied Tube & Conduit; a Tyco International Ltd. Co.
 3. Anamet Electrical, Inc.
 4. Electri-Flex Company.
 5. O-Z/Gedney; a brand of EGS Electrical Group.
 6. Republic Conduit.
 7. Southwire Company.
 8. Thomas & Betts Corporation.
 9. Western Tube and Conduit Corporation.
 10. Wheatland Tube Company; a division of John Maneely Company.
- B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. GRC: Comply with ANSI C80.1 and UL 6.
- D. ARC: Comply with ANSI C80.5 and UL 6A.
- E. IMC: Comply with ANSI C80.6 and UL 1242.
- F. EMT: Comply with ANSI C80.3 and UL 797.
- G. FMC: Comply with UL 1; zinc-coated steel.
- H. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- I. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.
 2. Fittings for EMT:
 - a. Material: Steel.
 - b. Type: Setscrew or compression.
 3. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

- J. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Adalet.
 - 2. Cooper Technologies Company; Cooper Crouse-Hinds.
 - 3. EGS/Appleton Electric.
 - 4. Erickson Electrical Equipment Company.
 - 5. Hoffman; a Pentair company.
 - 6. Hubbell Incorporated; Killark Division.
 - 7. Kraloy.
 - 8. Milbank Manufacturing Co.
 - 9. O-Z/Gedney; a brand of EGS Electrical Group.
 - 10. RACO; a Hubbell Company.
 - 11. Robroy Industries.
 - 12. Spring City Electrical Manufacturing Company.
 - 13. Stahlin Non-Metallic Enclosures; a division of Robroy Industries.
 - 14. Thomas & Betts Corporation.
 - 15. Wiremold / Legrand.
- B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- E. Non-metallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.
- F. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- G. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- H. Device Box Dimensions: 4 inches square by 2-1/8 inches deep. For areas where shallow boxes are required for installation in apartment units, boxes shall be
- I. Gangable boxes are allowed.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
 - 1. Exposed Conduit: GRC IMC.
 - 2. Concealed Conduit, Aboveground: GRC IMC.

3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
 1. Exposed, Not Subject to Physical Damage: EMT.
 2. Exposed, Not Subject to Severe Physical Damage: EMT.
 3. Exposed and Subject to Severe Physical Damage: GRC or IMC. Raceway locations include the following:
 - a. Loading dock.
 - b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
 - c. Mechanical rooms.
 4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
 5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
 6. Damp or Wet Locations: GRC or IMC.
 7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
 2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
 3. EMT: Use setscrew or compression, steel fittings. Comply with NEMA FB 2.10.
 4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.
- F. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for hangers and supports.

- E. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- H. Support conduit within 12 inches of enclosures to which attached.
- I. Stub-ups to Above Recessed Ceilings:
 - 1. Use EMT, IMC, or RMC for raceways.
 - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- J. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- K. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.
- L. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- M. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- N. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- O. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- P. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- Q. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
- R. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
 - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 - 2. Where an underground service raceway enters a building or structure.
 - 3. Where otherwise required by NFPA 70.
- S. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
- T. Expansion-Joint Fittings:
 - 1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet. Install in each run of aboveground RMC and EMT conduit that is located where

environmental temperature change may exceed 100 deg F and that has straight-run length that exceeds 100 feet.

2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
 - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
 - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
 - d. Attics: 135 deg F temperature change.
3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.
- U. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semi-recessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 1. Use LFMC in damp or wet locations subject to severe physical damage.
 2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.
- V. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to bottom of box unless otherwise indicated.
- W. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- X. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- Y. Locate boxes so that cover or plate will not span different building finishes.
- Z. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- AA. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

3.3 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in IBC 711 and 712."

3.4 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.

The University of Alabama in Huntsville
SWIRLL Roof Hatch
Project No. 18000A

26 05 33 - 7
RACEWAYS AND BOXES FOR
ELECTRICAL SYSTEMS

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION

