PROJECT MANUAL
FOR

ALABAMA A&M ANIMAL SCIENCE BUILDING RENOVATION

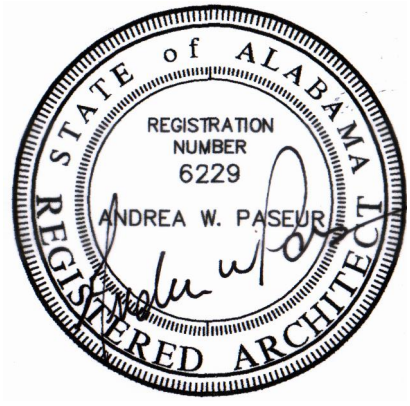
Alabama Department of Construction Management Project No. 2021660

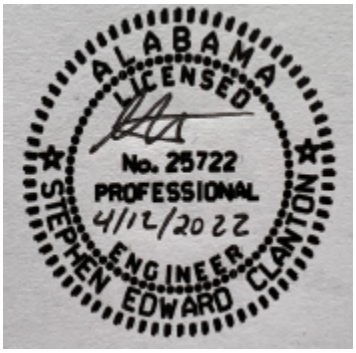
Architect Project No. 21021

2/24/23

A Project of:

Paseur & Associates Architecture, LLC
112-G Southside Square
Huntsville, Alabama 35801
Phone: 256-694-1170





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SECTION 011000 – SUMMARY

1.1 PROJECT INFORMATION

A. Project Identification: Alabama A&M Animal Science Building Renovation

1. Project Location: 372-B Walker Lane, Meridianville, AL.

B. Owner: Alabama A&M University, C/O Jerry Latham, Facilities Director

C. The Work consists of the interior renovation of an existing educational building of 5363 square feet, and the installation of a new septic system.

D. Project Duration: The entire project shall be completed in 6 months.
1. Rain day extension requests, if deemed necessary, shall be submitted in writing to the Architect for approval in accordance with DCM Form C-8 General Conditions of the Contract.

E. Aid to Construction: Aid to Construction costs shall be invoiced to the Owner at cost plus maximum 10% fixed fee.

F. Septic System Permit: Permit application to be submitted by Contractor. Permit fees shall be invoiced to the Owner at cost plus maximum 10% fixed fee.

G. Differing site conditions:
1. Underground gas or water lines are not expected at the new septic system location. In the event that lines are discovered in the septic system area, Contractor shall coordinate with Owner with shut-offs to gas line where allowed.

1.2 FEDERAL REQUIREMENTS

A. Alabama A&M University has a 29% Disadvantaged Business Enterprise (DBE) participation (Goal) obligation requirement for this project.

B. Davis Bacon Act: Contractors and subcontractors will comply with the Davis–Bacon Act that establishes the requirement for paying the local prevailing wages on public works projects to laborers and mechanics on contracts in excess of $2,000 for the construction, alteration, or repair (including painting and decorating) of public buildings or public works.

1. See APPENDIX B: Davis Bacon Wages Madison County, AL.

C. Buy America Act: Contractors and subcontractors will comply with the Buy America Act, which establishes requirements intended to give preference to the use of domestically produced materials on any procurements funded at least in part by federal funds. Implementation of the requirements is regulated by the Federal Transit Administration.

D. Tax Exempt Status: Work qualifies as tax exempt. The Owner will provide a tax-exemption certificate and number for the Contractor to use in purchasing.

SAMPLE
ADVERTISEMENT FOR BIDS

Sealed proposals will be received by Alabama A&M University
(Owner's legal title)

at the office of A&M University Facilities Management, 453 Buchanan Way (east entrance), Normal, AL (on campus)
(Name and address of Owner's authorized representative)

until 2:00 pm (Hours) CST March (Month), 30 (Day), 2023 (Year) for

(Description of the work to be inserted here):

The renovation of existing animal science educational building of 5500 square feet, including replacement of HVAC system, renovation of restrooms and interior plumbing fixtures, replacement of doors and interior finishes, and construction of new septic system; at which time and place they will be publicly opened and read.

A cashier's check or bid bond payable to Alabama Agricultural and Mechanical University
(Owner's legal title)

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 Datatek Reprographics,
2809 Newby Rd SW #123, Huntsville, AL 35805 (phone 26-539-8402)
(Owner's representative and address)

and Owner's website: www.aaamu.edu/adinstrativeoffice/bussiness-and-finance/facillties/pages/defaukt.aspx
(appropriate plan rooms; i.e., F. W. Dodge, Builders Exchange, Construction Market Data, etc.).

A non-mandatory pre-bid conference will be held at 9:00 a.m. CST Tuesday, March 14, 2023 at the AG Building at the Agricultural Research Station, 372 Walker Lane, Hazel Green, AL.

Bid Documents may be obtained from the Architect (Engineer) upon deposit of $ 100.00 per set, which will be refunded in full on the first two 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 be refunded as above, less cost of printing, reproduction, handling, and distribution.

(If applicable) Only general contractors who have been approved to bid pursuant to prequalification procedures and criteria established by the Owner will be eligible to bid for the Project. Written prequalification procedures and criteria are available for review at the office of (N/A).
(Owner's or Architect's/Engineer's representative and address)

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 judgement, the best interests of the Owner will thereby be promoted.

Alabama A&M University
(Awarding Authority/Owner)

(Local Awarding Authority/Local Owner)

Paseur & Associates Architecture, LLC
(Architect/Engineer)

NOTE: For projects exceeding $50,000, this notice must be run once a week for three successive weeks in a newspaper of general circulation in the county or counties in which the project, or any part of the project, is to be performed. If the project involves an estimated amount exceeding $500,000, this notice must also run at least once in three newspapers of general circulation throughout the state. Proof of publication is required.

INSTRUCTIONS TO BIDDERS

CONTENTS

1. BID DOCUMENTS:

The Bid Documents consist of the Advertisement for Bids, these Instructions to Bidders, any supplements to these Instructions to Bidders, the Proposal Form and the Accounting of Sales Tax, 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. DCM Form C-3: 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. A completed DCM Form C-3A: Accounting of Sales Tax must be submitted with the Proposal Form.

(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. DCM Form C-3A: Accounting of Sales Tax

A completed DCM Form C-3A: Accounting of Sales Tax must be submitted with DCM Form C-3: Proposal Form. Submission of DCM Form C-3A is required, it is not optional. A proposal shall be rendered non-responsive if an Accounting of Sales Tax is not provided.

c. 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.

d. 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:

a. 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.

b. A list of all proposed major subcontractors and suppliers will be submitted by Bidders to the Architect at a time subsequent to the receipt of bids as established by the Architect in the Bid Documents but in no event shall this time exceed twenty-four (24) hours after receipt of bids. If the list includes a fire alarm contractor and/or fire sprinkler contractor, Bidders will also submit a copy of the fire alarm contractor's and/or fire sprinkler contractor's permits from the State of Alabama Fire Marshal's Office.

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 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 (from the Lead Design Professional)
(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 along with distribution of the fully executed construction contract to all parties.	15 calendar days after final execution of contract by the Awarding Authority, by various State Agencies if required 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

PROPOSAL FORM

To: _____ Date: _____
(Awarding Authority)

In compliance with the 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) $ _____
(Insert key word for Alternate)

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 - (Attach to this Proposal Form the unit prices, if any, on a separate sheet.)

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.

The Bidder also declares that a list of all proposed major subcontractors and suppliers will be submitted at a time subsequent to the receipt of bids as established by the Architect in the Bid Documents but in no event shall this time exceed twenty-four (24) hours after receipt of bids.

Legal Name of Bidder _____

Mailing Address _____

* **By (Legal Signature)** _____

* Name & Title (print) _____ (*Seal*)

Telephone Number _____

Email Address _____

* 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.

Note: A completed DCM Form C-3A: Accounting of Sales Tax must be submitted with DCM Form C-3: Proposal Form. Submission of DCM Form C-3A is required, it is not optional. A proposal shall be rendered non-responsive if an Accounting of Sales Tax is not provided.

ACCOUNTING OF SALES TAX
Attachment to DCM 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:

ESTIMATED SALES TAX AMOUNT

BASE BID: $_____

Alternate No. 1 (……..) ☐(add) ☐(deduct) $_____
(Insert key word for Alternate)

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 _____

Email Address _____

Note: A completed DCM Form C-3A: Accounting of Sales Tax must be submitted with DCM Form C-3: Proposal Form. Submission of DCM Form C-3A with DCM Form C-3 is required, it is not optional. A proposal shall be rendered non-responsive if an Accounting of Sales Tax is not provided.

Do not staple this form; use clips.

DCM Form C-4
August 2021

BID BOND

The **PRINCIPAL** (*Bidder's company name and address*)
Name:
Address:

The **SURETY** (*Company name and primary place of business*)
Name:
Address:

The **OWNER** (*Entity name and address*)
Name:
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

Note: Do not staple this form; use clips. Purpose: quickly and efficiently scan thousands of documents into DCM's database.

(1) *Do not staple this form and/or attachments; use clips. Print single-sided; do not submit double-side printed documents.*

DCM (BC) Project No.

CONSTRUCTION CONTRACT

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

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

(3) between the **OWNER,**
Entity Name:
Address:
Email & Phone #:

(4) and the **CONTRACTOR,**
Company Name:
Address:
Email & Phone #:

(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
Firm Name:
Address:
Email & Phone #:

(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 (DCM 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 commence on a date to be specified in a Notice to Proceed issued by the Owner or the Director, Alabama Division of Construction Management, 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.

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

(13) **SPECIAL PROVISIONS** *(Special Provisions may be inserted here, such as acceptance or rejection of unit prices. If Special Provisions are continued in an attachment, identify the attachment below)*:

(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.:

Classification(s):

Bid Limit:

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)

APPROVAL

ALABAMA STATE DEPARTMENT OF EDUCATION (SDE)
(*Required for locally-funded, SDE projects.*)

By_____ Date:_____
State Superintendent of Education

CONTRACTING PARTIES

_____
Contractor Company

By _____
Signature

Name & Title _____

_____
Owner Entity

By _____
Signature

Name(s) & Title(s) _____

Review/Signature flow: Architect/Engineer (prepare documents) > Contractor (review and sign) > Architect/Engineer (review) > Owner (review and sign) > SDE (review, sign and distribute the fully executed Contract to all parties, and forward a copy to the Alabama Division of Construction Management [DCM]). Note: DCM does not sign fully locally-funded SDE project contract documents.

Numbers in margin correspond to second page of "Checklist", DCM Form B-7

(1) # PERFORMANCE BOND

SURETY'S BOND NUMBER

Do not staple this form; use clips.

(2) The **PRINCIPAL** (*Company name and address of Contractor as appears in the Construction Contract*)
Name:
Address:

(3) The **SURETY** (*Company name and primary place of business*)
Name:
Address:

(4) The **OWNER** (*Entity name and address, same as appears in the Construction Contract*)
Name:
Address:

(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 second page of "Checklist", DCM 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 second page of "Checklist", DCM 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 & 10)

SURETY:	**CONTRACTOR as PRINCIPAL:**
_____ Company Name	_____ Company Name
By _____ Signature	By _____ Signature
_____ Name and Title	_____ Name and Title

(11) NOTE: Original power of attorney for the Surety's signatory shall be furnished with each of the original three bond forms to be attached to each of the three contract copies (with original signatures) per project.

Do not staple this form; use clips. Purpose: quickly and efficiently scan thousands of documents into DCM's database.

Numbers in margin correspond to second page of "Checklist", DCM Form B-7

(1) # PAYMENT BOND

SURETY'S BOND NUMBER

Do not staple this form; use clips.

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

(3) The **SURETY** (*Company name and primary place of business*)
Name:
Address:

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

(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 second page of "Checklist", DCM 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 & 10)

SURETY:	**CONTRACTOR as PRINCIPAL:**
_____ Company Name	_____ Company Name
By _____ Signature	By _____ Signature
_____ Name and Title	_____ Name and Title

(11) NOTE: Original power of attorney for the Surety's signatory shall be furnished with each of the original three bond forms to be attached to each of the three contract copies (with original signatures) per project.

Do not staple this form; use clips. Purpose: quickly and efficiently scan thousands of documents into DCM's database.

GENERAL CONDITIONS of the CONTRACT

CONTENTS

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 DIVISION OF CONSTRUCTION MANAGEMENT: The Technical Staff of the Alabama Division of Construction Management.

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. COMMISSION: The former Alabama Building Commission, for which the Alabama Division of Construction Management has been designated by the Legislature as its successor.

D. 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)

E. 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.

F. 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.

G. 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.

H. DCM: The Alabama Division of Construction Management.

I. DCM PROJECT INSPECTOR: The member of the Technical Staff of the Alabama Division of Construction Management to whom the Project is assigned relative to executing the respective inspections and authorities described in Article 16, Inspection of the Work.

J. 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) s**ubstitutions 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.

K. DIRECTOR: The Director of the Alabama Division of Construction Management.

L. 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.

M. 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.

N. 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.

O. 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.

P. 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.

Q. 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.

R. 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.

S. 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 phases 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) Any portions of the Contract Documents written in longhand must be initialed by all parties..

(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, DCM 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 DCM Form C-11, "Sample 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, it may be used in lieu of DCM Form C-11.

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, DCM 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, DCM 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 DCM Project Inspector as a representative of the Alabama Division of Construction Management.

(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 DCM Project Inspector, and are attended by the Contractor and applicable Subcontractors, suppliers and manufacturers, and the DCM 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 DCM 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 DCM 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 DCM 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 DCM PROJECT INSPECTOR

(1) The DCM 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 DCM Project Inspector shall have the authority to:

(a) reject Work that is not in compliance with the State Building Code adopted by the DCM, unless the Work is in accordance with the Contract Documents in which case the DCM 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 DCM Project Inspector.

(3) The DCM 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 DCM 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 DCM Project Inspector will be transmitted to the Owner, Contractor, and Architect.

(4) The DCM 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 DCM 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.

(7) All change orders require DCM Form C-12: Contract Change Order and DCM Form B-11: Change Order Justification. Only Change Orders 10% or greater of the current contract amount require the Owner's legal advisor's signature on DCM Form B-11: Change Order Justification.

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%. **Changes which involve a net credit to the Owner shall include fair and reasonable credits for overhead and profit on the deducted work, in no case less than 5%.** 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. **Changes which involve a net credit to the Owner shall include fair and reasonable credits for overhead and profit on the deducted work, in no case less than 5%.** 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, DCM 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

DCM Form C-10SOV, 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 printable on 8.5" × 11" for DCM's scanning purposes 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 DCM Form C-10, Application and Certificate 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. One payment application per month may be submitted. Each DCM Form C-10, Application and Certificate for Payment shall match to the penny and be accompanied by an attached DCM Form C-10SOV, Schedule of Values.

(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 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.

(4) Two copies of DCM Form C-10, Application and Certificate for Payment containing original signatures, with each copy of DCM Form C-10 to include all attachments, shall be submitted to DCM for review following the Contractor's, Notary's (for paper submittals), Architect's and Owner's signatures.

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 to the Owner 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 Division of Construction Management.

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. <u>CERTIFICATE of SUBSTANTIAL COMPLETION</u>

(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 Division of Construction Management.

(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 Division of Construction Management 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, DCM 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 Division of Construction Management 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. Architect prepares DCM Form B-13: Final Payment Checklist and forwards it to the Owner along with the final Application for Payment.

(5) Completion of an Advertisement for Completion pursuant to Paragraph C below.

(6) Delivery by the Contractor to the Owner through the Architect of DCM Form C-18:

Contractor's Affidavit of Payment of Debts and Claims, and a Release of Claims, if any, 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 to Final Payment, if any, to Contractor. This Consent of Surety is required for projects which have Payment and Performance Bonds.

(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.

(9) See Manual of Procedures Chapter 7, Section L.7 concerning reconciliation of contract time, if any.

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 DCM Project Inspector, or **(2)** their resolution under Article 18, Deductions for Uncorrected Work.

C. ADVERTISEMENT for COMPLETION

(1) If the Contract Sum is $50,000 or less: 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 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 shall be made by the Contractor to the Architect by affidavit of the publisher, in duplicate, 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 inspection must be scheduled with the Owner, Architect and DCM Inspector. 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" (DCM 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 Division of Construction Management.

(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 Division of Construction Management.

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 Division of Construction Management, 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

(Provide entire Article 37 to Contractor's insurance representative.)

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
- **(l)** 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:

Coverage	Limit
.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 Division of Construction Management, 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 Division of Construction Management, 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 Division of Construction Management, 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. But said waiver shall apply only to the extent the loss or damage is covered by builder's risk 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 not be applicable to loss or damage that occurs after final acceptance of the Work.

ARTICLE 38
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 (P&P Bonds), DCM Forms C-6 and C-7 as contained in the Project

Manual, 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 amount. There shall be three original P&P Bonds submitted with original signatures for each of the three contracts required. The P&P bonds must be signed either on the same day or after the construction contract date. Each P&P Bond shall have attached thereto an original power of attorney (POA) of the signing official. The POA signature date must be the same day as the P&P Bond's signature date. All signatures must be present.

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 Division of Construction Management, 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 Owner, 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.

D. ALABAMA IMMIGRATION LAW

Per ACT 2011-535 as codified in Title 31, Chapter 13 of the Code of Alabama, 1975, as amended:

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.

E. ALABAMA BOYCOTT LAW

Per Act 2016-312as codified in Title 41, Chapter 16, Article 1, of the Code of Alabama, 1975, as amended:

The contracting parties affirm, for the duration of the agreement, that they are 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.

F. ACCOUNTING OF SALES TAX EXEMPT PROJECTS

Per Act 2013-205 as codified in Title 40, Chapter 9, Article 1, of the Code of Alabama, 1975, as amended:

In bidding the work on a tax exempt project, the bid form shall provide an accounting for the tax savings.

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 Division of Construction Management, 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

A. Fully locally-funded State Agency and Public Higher Education projects: DCM Form C-15: Detail of Project Sign must be included in the project manual regardless of expected bid amount. If the awarded contract sum is $100,000.00 or more, Contractor shall furnish and erect a project sign. Other conditions besides the contract sum may warrant waiver of this requirement, but only with approval of the Technical Staff.

B. Fully locally-funded K-12 school projects: Project sign is not required unless requested by Owner; if project sign is requested by Owner, include DCM Form C-15: Detail of Project Sign in the project manual.

C. Partially or fully PSCA-funded projects: DCM Form C-15: Detail of Project Sign must be included in the project manual. Contractor shall furnish and erect a project sign for all PSCA-funded projects, regardless of the contract sum. "Alabama Public School and College Authority" as well as the local owner entity must be included as awarding authorities on the project sign of all PSCA-funded projects.

When required per the above conditions, 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 project sign is required, which shall be erected on one of the sites in a location selected by the Architect and Owner. Slogan: The title of the current PSCA Act should be placed on the project sign of all PSCA-funded projects, otherwise the Awarding Authority/Owner's slogan, if any, should be used. If the Awarding Authority/Owner of a fully locally-funded project does not have a slogan, the project sign does not require a slogan.

END of
GENERAL CONDITIONS of the CONTRACT

DCM Form C-10
Revised July 2022

DCM (BC) No. _____

PSCA Projects: PSCA No. _____

Application No. _____

Date: _____

APPLICATION and CERTIFICATE for PAYMENT

Attach DCM Form C-10SOV: Schedule of Values

TO OWNER: Entity Name: Address:	PROJECT:
FROM CONTRACTOR: Company Name & Address, which must exactly match co. name & payment address spelling as registered in State of AL Accounting & Resource System (STAARS) or AL Buys to avoid rejection: STAARS or AL Buys Vendor #:	ARCHITECT / ENGINEER: Firm Name: Address:

A. Total Original Contract	$
B. Fully Executed (fully signed) Change Order(s) Numbers __ through __	+$ _____
C. Total Contract To Date	$

1. Work Completed to Date per attached Schedule of Values *(Form C-10SOV's Column F Total)*		$
2. Materials Presently Stored *(When this amount is greater than $0.00, attach Form C-10SM: Inventory of Stored Materials, or similar list)*		+$ _____
3. Total Work Completed to Date & Materials Presently Stored *(_____% of Contract To Date)*		$
4. Less Retainage *(If Total Work Completed to Date & Materials Presently Stored (#3) is less than or equal to 50% of Total Contract to Date (C), Retainage = #3 x 0.05. Once #3 exceeds 50% of C and up until project is complete, Retainage = C x 0.025. $0 is retained on final payment application, see last bullet point below Instructions.)*	Final pay app? ☐ Yes.	−$ _____
5. Total Due		$
6. Less Total Previous Payments Billed *(Must exactly match #5 Total Due from previous payment application. # 6 is $0.00 if there is no previous payment application)*		−$ _____
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: _____
Contractor's Signature

Name & Title _____

Sworn and subscribed before me this _____ day of _____
Day Month, Year

Seal:

_____
Notary Public's Signature

ARCHITECT'S / ENGINEER'S CERTIFICATION

In accordance with the Contract Documents, the Architect/ Engineer certifies to the Owner that, to the best of the Architect's/ Engineer'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.

By _____
Architect's / Engineer's Signature

Name & Title _____

Date _____

INSTRUCTIONS

- PSCA-funded projects, and State Agency-owned projects: Two copies of pay. app., each with original signatures and all attachments required.
- Date of first payment application cannot precede the Notice to Proceed's Begin Date.
- Pay. app. must exactly match an attached DCM Form C-10SOV: Schedule of Values.
- A change order must be fully executed before inclusion on a payment application.
- Contractor's signature date cannot precede the payment application date.
- Contractor and Notary signee dates must match.
- Progress schedules must be included with non-final payment applications.
- One payment application per month may be submitted.
- On a final payment application, the following is required for release of retainage: all change orders must be fully executed (signed by all parties and approval authorities) and included in B., the Certificate of Substantial Completion for entire work is fully executed, and all other close-out requirements per General Conditions Article 34 are completed.

APPROVAL

_____
Owner Entity

By _____
Signature

Name & Title _____

Date _____

INVENTORY OF STORED MATERIALS

DCM Form C-10SM
Revised October 2021

Project:	DCM (BC) No.:
	PSCA No, if any:
Contractor Company:	For Estimate No.:
	For Period Ending:

A	B	C	D	E
Description	**Materials Stored Last Period**	**Materials Purchased This Period (period noted above)**	**Materials Used This Period (period noted above)**	**Materials Presently Stored (B + C - D)**
TOTALS:				

Instructions :

· This Form C-10SM must be submitted as part of the payment application documentation when a Materials Presently Stored amount of anything greater than $0 is noted on line 2 of DCM Form C-10: Application and Certificate for Payment.

· Receipts must be provided as attachments to this form C-10SM for all amounts placed in Column C: Materials Purchased This Period.

· The total $ amount of this Form C-10SM's column E: Materials Presently Stored must match both Form C-10's line 2: Materials Presently Stored, and Form C-10SOV: Schedule of Values' total $ amount of Column G: Materials Presently Stored.

· The $ amounts in this current Form C-10SM's Column D: Materials Used This Period are amounts that must all be included in the current payment application's Form C-10SOV's Column E: Work Completed This Period.

· The $ amounts in this current Form C-10SM's Column E: Materials Presently Stored are the amounts that must be listed in the next payment application's Form C-10SM's Column B: Materials Stored Last Period.

SCHEDULE OF VALUES (SOV)

DCM Form C-10SOV
Revised October 2021

Project:	DCM (BC) Project Number:
	PSCA Project Number, if any:
Contractor Company:	Application Number:
	Application Date:
	Period From: / Period To:

A	B	C	D	E	F	G	H	I	J
Item No.	Description of Work	Scheduled Value (including fully executed [signed by all parties] change order amounts)	Work Completed: Work Previously Completed (Previous pay app SOV's column F. D is $0 if this SOV is for first pay app.)	Work Completed: Work Completed This Period (Period as noted above)	Total Work Completed to Date (This application SOV's D + E)	Materials Presently Stored (G total greater than $0 must match C-10SM's column E total. This SOV's G amounts are not in this SOV's D nor E amounts.)	Total Work Completed to Date & Materials Presently Stored (This SOV's F + G)	Percent of Contract Completed to Date (This SOV's H / C)	Retainage (This column's Total's cell formula calculates the applicable variable rate)
1.					$ -		$ -		Retainage Variable Rate:
2.					$ -		$ -		
3.					$ -		$ -		
4.					$ -		$ -		If Total Work Completed to Date & Materials Presently Stored (H) is less than or equal to 50% of Total Scheduled Value (C), Retainage = H x 0.05.
5.					$ -		$ -		
6.					$ -		$ -		
7.					$ -		$ -		
8.					$ -		$ -		
9.					$ -		$ -		
10.					$ -		$ -		
11.					$ -		$ -		
12.					$ -		$ -		
13.					$ -		$ -		
14.					$ -		$ -		
15.					$ -		$ -		Once H exceeds 50% of C and up until project is complete, Retainage = C x 0.025.
16.					$ -		$ -		
17.					$ -		$ -		
18.					$ -		$ -		
19.					$ -		$ -		
20.					$ -		$ -		
21.					$ -		$ -		There will be no retainage on final payment application.
22.					$ -		$ -		
23.					$ -		$ -		
24.					$ -		$ -		
25.					$ -		$ -		
	TOTALS:	$ -	$ -	$ -	$ -	$ -	$ -		$ -
This pay app SOV's column totals must match amounts in this pay app Form C-10 per the following indicated Form C-10 line #s:		C.	None	None	1.	2.	3.	3.	4.

Note: If this SOV's column G: Materials Presently Stored includes any amounts other than $0, then DCM Form C-10SM: Inventory of Stored Materials with back-up receipts must be submitted as part of the payment application documentation.

SAMPLE PROGRESS SCHEDULE & REPORT	CONTRACTOR (Contractor may use own form in lieu of Form C-11):	DATE OF REPORT:
DCM (BC) No.:		PROCEED DATE:
PSCA projects: PSCA No.:		
PROJECT:	ARCHITECT/ENGINEER:	PROJECTED COMPLETION DATE:

	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 OVER 12 MONTHS.

DCM Form C-11 August 2021

CONTRACT CHANGE ORDER

Change Order No. _____ **Date** _____ **DCM (BC) No.** _____

TO: (*Contractor*) Co. Name: Address:	**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. If the description is continued in an attachment, identify the attachment below.*):

Description continued from Page 1:

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 ☐ None *or* _____ Calendar 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.

_____
Architectural/Engineering Firm

Recommended By _____

Name & Title _____

APPROVAL

ALABAMA STATE DEPARTMENT OF EDUCATION (SDE)

(Required for locally-funded, SDE projects.)

By _____ Date: _____
State Superintendent of Education

CONTRACTING PARTIES

_____
Contractor Company

By _____

Name & Title _____

_____
Awarding Authority/Owner Entity

By _____

Name & Title _____

CONSENT OF SURETY (for additive $ change orders only)

_____
Surety Company

By _____
(Attach current Power of Attorney)

Name & Title _____

Review/Signature flow: Architect/Engineer (prepare documents) > Contractor (review and sign) (> Surety for additive $ change orders only [sign]) > Architect/Engineer (review and sign) > Owner (review and sign) > SDE (review, sign, distribute the fully executed Change Order to all parties and forward a copy to the Alabama Division of Construction Management [DCM]). Note: DCM does not sign fully locally-funded SDE project contract documents.

TO: **Alabama Department of Finance**
Real Property Management
Division of Construction Management
770 Washington Avenue, Suite 444
Montgomery, AL 36130-1150
(334) 242-4082 FAX (334) 242-4182

CERTIFICATE OF SUBSTANTIAL COMPLETION

Do not staple this form and/or attachments; use clips.
Print single-sided; do not submit double-side printed documents.

ROUTING PROCEDURES *ON NEXT PAGE*

DCM (BC) No. _____

OWNER ENTITY NAME AND ADDRESS:	**ARCHITECTURAL / ENGINEERING FIRM NAME AND ADDRESS:**
Email to receive executed copy: _____	Email to receive executed copy: _____
CONTRACTOR COMPANY NAME AND ADDRESS:	**BONDING COMPANY NAME AND ADDRESS:**
Email to receive executed copy: _____	Email to receive executed copy: _____
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 <u>one</u> (1) originally executed substantial completion form shall be routed for signature. DCM office will mail the fully-executed original to the Owner and email copies to all parties.

RECOMMENDED BY *(signature and email address required)***:**	
ARCHITECT/ENGINEER: _____	DATE: _____
CONTRACTING PARTIES:	
CONTRACTOR: _____	DATE: _____
OWNER: _____	DATE: _____
_____	DATE: _____
APPROVALS:	
DCM INSPECTOR: _____	DATE: _____
DCM CHIEF INSPECTOR: _____	DATE: _____
DCM DIRECTOR: _____	DATE: _____

CERTIFICATE OF SUBSTANTIAL COMPLETION ROUTING PROCEDURE

Only one (1) originally executed substantial completion form shall be routed for signature. DCM office will mail the fully-executed original to the owner and email copies to all parties.

ARCHITECT/ENGINEER: Sign and date document, then mail it to Contractor. Provide Owner with DCM Inspector's name & field office address; territories and addresses are available at www.dcm.alabama.gov/staff.aspx.

CONTRACTOR: Sign and date document, then mail it to Owner.

OWNER: Sign and date document, then mail it to DCM Inspector's field office address; DCM Inspector territories and addresses are available at www.dcm.alabama.gov/staff.aspx.

DCM INSPECTOR: Sign and date document, then mail it to DCM Montgomery office.

DCM OFFICE: After review and signature/date by DCM Chief Inspector and DCM Director, DCM office will mail the fully-executed original document to Owner and will email copies to all parties.

NOTICE

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

SAMPLE FORM OF ADVERTISEMENT FOR COMPLETION

LEGAL NOTICE

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

that _____,
(*Contractor Company Name*)
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 / Engineer*)

_____
(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 $50,000.00 or less, run one time only. A copy of the publisher's affidavit of publication (including a copy of the advertisement) shall be submitted by the Contractor to the Design Professional for inclusion with DCM Form B-13: Final Payment Checklist for state agencies, PSCA-funded and other bond-funded projects.

DCM (BC) Number: _____

PSCA Projects: PSCA Number: _____

Date of the Construction Contract: _____

Contractor's Affidavit of Payment of Debts and Claims

To Owner (*Entity name and address*)**:**	**Project** (*Same as appears in the Construction Contract*)**:**

STATE OF:

COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Construction Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

Supporting Documents Attached Hereto:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. DCM Form C-20, Consent of Surety to Final Payment, may be used for this purpose.

   Indicate attachment: ☐ Yes ☐ No

The following supporting document should be attached hereto if required by the Owner:

1. Contractor's Release of Waiver of Liens.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment supplies, to the extent required by the Owner, accompanied by the list thereof.
3. Contractor's Affidavit of Release of Liens, DCM Form C-19.

Contractor (*Insert company name and address*)**:**

By:_____
Signature of authorized representative

_____
Name and Title

Sworn to and subscribed before me this _____ day

of _____, _____.

_____
Notary Public's Signature

My commission expires: _____

Seal:

DCM (BC) Number: _____

PSCA Projects: PSCA Number: _____

Date of the Construction Contract: _____

Contractor's Affidavit of Release of Liens

To Owner (*Entity name and address*)**:**	**Project** (*Same as appears in the Construction Contract*)**:**

STATE OF:

COUNTY OF:

The undersigned hereby certifies that, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Construction Contract referenced above.

EXCEPTIONS:

Supporting Documents Attached Hereto:

1. Contractor's Release of Waiver of Liens.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment supplies, to the extent required by the Owner, accompanied by the list thereof.

Contractor (*Insert company name and address*)**:**

By: _____
Signature of authorized representative

_____
Name and Title

Sworn to and subscribed before me this _____ day

of _____, _____.

_____
Notary Public's Signature

My commission expires: _____

Seal:

DCM (BC) Number: _____

PSCA Projects: PSCA Number: _____

Date of the Construction Contract: _____

Surety's Bond Number: _____

CONSENT OF SURETY TO FINAL PAYMENT

To Owner (*Entity name and address):*	**Project** (*Same as appears in the Construction Contract*)**:**

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the

Surety (*Insert name and address of Surety*)

on bond of

Contractor (*Insert name and address of Contractor*)

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of any of its obligations to

Owner (*Insert name and address of Entity*)**:**

as set forth in said Surety's bond.

SIGNED AND SEALED this _____ day of _____, _____.

SURETY:

_____ Seal:
Company Name

By _____
Signature of Authorized Representative

_____
Printed Name and Title

Note: Original Power of Attorney for the Surety's signatory shall be furnished with each of the original forms to be attached to each of the four (4) final payment forms.

STATE OF ALABAMA
DEPARTMENT OF FINANCE
REAL PROPERTY MANAGEMENT
Division of Construction Management

Kay Ivey
Governor

Bill Poole
Director of Finance

P.O. Box 301150, Montgomery, AL 36130-1150
770 Washington Avenue, Suite 444, Montgomery, AL 36104
Telephone: (334) 242-4082 Fax: (334) 242-4182

Mickey Allen
Assistant Finance Director
Real Property Management

Frank Barnes, Director
Construction Management

E-Verify Memorandum of Understanding

Instructions for inclusion in project manuals.

Per DCM's May 29, 2012 bulletin *Guidance on Act 2012-491 Amending the Alabama Immigration Law*: "Contractors (including architects and engineers) will … be required to enroll in the E-Verify program and to provide documentation of enrollment in the E-Verify program with their contracts or agreements."

Upon completing enrollment in the E-Verify program available at https://www.e-verify.gov/employers/enrolling-in-e-verify, an E-Verify Memorandum of Understanding (MOU) is issued to the enrolled business. The same E-Verify MOU can be repeatedly used until any information in the business's E-Verify user profile is updated, at which time E-Verify updates the printable Company Information section of the MOU, while the original signatory information remains the same. Typically, an E-Verify MOU is 13-18 pages long depending on business type and number of employees.

DCM requires a copy of the entire current E-Verify MOU document including the completed Department of Homeland Security – Verification Division section (with name, signature and date included) to be submitted as an attachment to each Construction Contract original and to each Agreement Between Owner and Architect original.

State of Alabama
Disclosure Statement

Required by Article 3B of Title 41, Code of Alabama 1975

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

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

Article 3B of Title 41, Code of Alabama 1975 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.

Revised: 09/2013

ALABAMA DEPARTMENT OF REVENUE
SALES AND USE TAX DIVISION
P.O. Box 327710 • Montgomery, AL 36132-7710

ST: EXC-01
6/21

Application For Sales and Use Tax Certificate of Exemption

FOR GOVERNMENT ENTITY PROJECT

This Certificate of Exemption will be limited to purchases which qualify for an exemption of sales and use taxes pursuant to Rule No. 810-6-3-.77

PROJECT INFORMATION:

PROJECT NAME	PROJECT OWNER'S FEIN (EXEMPT ENTITY)

STREET ADDRESS OF PROJECT (CITY AND COUNTY INCLUDED)	CITY	ZIP	COUNTY

APPLICANT'S INFORMATION:

RELATION: *(CHOOSE ONE)*

☐ Government Entity ☐ General Contractor ☐ Subcontractor

APPLICANT'S LEGAL NAME	FEIN

DBA	CONSUMER'S USE TAX ACCOUNT NUMBER

MAILING ADDRESS: STREET	CITY	STATE	ZIP	COUNTY

CONTACT PERSON	BUSINESS TELEPHONE NUMBER
	( )

EMAIL ADDRESS

CONTRACT SIGN DATE (PROVIDED BY GENERAL CONTRACTOR)	CONTRACT COMPLETION DATE (PROVIDED BY GENERAL CONTRACTOR)

ESTIMATED START DATE (FOR APPLICANT)	ESTIMATED COMPLETION DATE (FOR APPLICANT)

WILL THE APPLICANT HAVE ANY SUBCONTRACTORS ON THIS JOB?	NAME OF PARTY TO THE CONTRACT
☐ Yes ☐ No If yes, please attach list.	

JOB DESCRIPTION

WILL ANY POLLUTION CONTROL EXEMPTION BE APPLICABLE?	ESTIMATED POLLUTION CONTROL COST
☐ Yes ☐ No	$

TOTAL PROJECT BID AMOUNT (APPLICANT'S PORTION OF PROJECT)	LABOR COST (APPLICANT'S PORTION OF PROJECT)	MATERIAL COST (APPLICANT'S PORTION OF PROJECT)
$	$	$

REVENUE DEPARTMENT USE ONLY

PENDING DOCUMENTATION / INFORMATION:

☐ GCL ☐ SBL ☐ Contract / NTP / LOI ☐ LOS ☐ Contract Dates / Breakdown of Costs

Contact Dates: _____ Received Date: _____

_____ Forwarded for Denial: _____

PROJECT NAME	PROJECT OWNER'S FEIN (EXEMPT ENTITY)

FORM OF OWNERSHIP:

☐ Individual ☐ Partnership ☐ Corporation ☐ Multi member LLC ☐ Single member LLC ☐ Government Entity

If applicant is a corporation, a copy of the certified certificate of incorporation, amended certificate of incorporation, certificate of authority, or articles of incorporation should be attached. If the applicant is a limited liability company or a limited liability partnership, a copy of the certified articles of organization should be attached.

OWNERSHIP INFORMATION:

Corporations – give name, title, home address, and Social Security Number of each officer.

Partnerships – give name, home address, Social Security Number or FEIN of each partner.

Sole Proprietorships – give name, home address, Social Security Number of owner.

LLC – give name, home address, and Social Security Number or FEIN of each member.

LLP – give name, home address, and Social Security Number or FEIN of each partner.

NAME *(PLEASE PRINT)* _____ SIGNATURE _____

TITLE _____ DATE _____

REVENUE DEPARTMENT USE ONLY

PENDING OTHER:

☐ Government Entity ☐ General Contractor ☐ Not on LOS

Contact Dates: _____ Received Date: _____

_____ Forwarded for Denial: _____

Examiner's Remarks _____

Examiner _____ Date _____

Instructions For Preparation of Form ST: EXC-01
Sales and Use Tax Certificate of Exemption for Government Entity Project

NOTE: Exemption Certificates will be issued as of the contract sign date or the received date of the application. If, upon receipt of the application, the project has already commenced, the certificate will be issued as of the received date of the application. Any purchases made prior to the issuance of a certificate will not be exempt.

*** **Please allow 10 to 14 business days for your application to be processed.** ***

In order to expedite the processing of your application, please include the following documentation when submitting your application:

Exempt Entity:
1. Signed Application
2. Copy of Executed/Signed Contract, Letter of Intent, Notice of Award, and/or Notice to Proceed

General Contractor:
1. Signed Application
2. Copy of Executed/Signed Contract, Letter of Intent, Notice of Award, and/or Notice to Proceed
3. List of Subcontractors
4. Alabama Board of General Contractor's License
5. State/County Business License (usually obtained through county probate office)
6. Any other municipal business licenses associated with the project

Subcontractor:
1. Signed Application
2. Alabama Board of General Contractor's License
3. State/County Business License (usually obtained through county probate office)
4. Any other municipal business licenses associated with the project
5. List of Subcontractors (if any)

General contractors and subcontractors:
- Any additions and/or deletions to the list of subcontractors working on a project must be submitted to the Department within 30 days of occurrence.
- If an extension is needed for a project, please contact the Department of Revenue at the address, number, or email listed below. Extension requests should be submitted no more than 30 days after expiration date.
- Subcontractor's Estimated Start Date should be the date they will begin working on the project and ordering materials instead of the General Contractor's Estimated Start Date for the project.

THERE IS A FILING REQUIREMENT IF YOUR APPLICATION IS APPROVED. The return will be filed through the Consumer's Use Tax account. Please see the following page for detailed instructions and general information regarding the reporting requirements.

The application and required documentation may be mailed, faxed, or emailed to the following:

Fax: (334) 353-7867

Email: STExemptionUnit@revenue.alabama.gov

Mailing Address: ATTN: Contractor's Exemption
Alabama Department of Revenue
Sales & Use Tax Division
Room 4303
PO Box 327710
Montgomery, AL 36132-7710

General Information and Instructions Regarding the Reporting Requirements for Contractors Awarded an Exemption Certificate

A contractor's exemption certificate for a Government Entity project is needed in order to purchase materials tax exempt for the qualified project. Once the exemption certificate has been applied for and awarded, there is a monthly filing requirement to report the purchases that have been made for each exempt project. The Consumer's Use (CNU) tax account is used to report the tax-exempt purchases made with each certificate for each exempt project for each month.

The consumer's use tax return must be filed for each of the months covered by the exemption certificate. (For example, if the certificate's effective date is June 29, 2014 and the expected completion date is October 1, 2014, a consumer's use tax return must be filed for each of the following months: June, July, August, September, and October.) A return MUST be filed each month to report the monthly purchases. Therefore, all active exemption certificates must be included on the monthly report even if the monthly purchases for a specific project was $0.

If a CNU tax account is not already open under the taxpayer/business name, one will automatically be assigned at the time the exemption certificate is generated. Electronic filing is required through the Department's online filing system, My Alabama Taxes (MAT). A letter containing the online filing information will be mailed to the address on file within a few days after the new CNU tax account has been assigned. This letter will contain all the information needed to create your online filing account in MAT. For questions relating to setting up the account on www.myalabamataxes.alabama.gov, please contact Business Registration at 334-242-1584 or the Sales Tax Division at 1-866-576-6531.

Once the MAT account is set up, please log in and file the monthly CNU tax return. There is a table located at the bottom left hand corner labeled "Contractor's Exemption for Government Construction Projects." All three fields in the table are required to be completed: exemption number, project number, and total amount of purchases for that specific project for the month. Additional projects may be added on the additional rows that appear as data is added; the table will allow the addition of more projects.

***Please do not use lines 1 through 9 of the return for reporting exempt project information. Leave these lines blank unless taxable purchases were made outside of the state of Alabama that need to be reported and tax remitted. (Lines 1 through 9 do not have anything to do with the exemption reporting requirements).

When the certificate expires (upon the project's completion) and the CNU tax account is no longer needed, please contact the Business Registration Unit at 334-242-1584 and close the CNU tax account. Please be advised that if there are multiple government entity projects open, the consumer's use tax account should remain open until the last project completion date. For example, if Project EXC00ABCD ends in June of 2014 but Project EXC00EFGH ends January of 2015, the CNU tax account must remain open until the end of January 2015. A return for Project EXC00EFGH must be filed all the way through January 2015.

If the applicant already has a CNU tax account and it is currently set up online, please use this account to report exempt project purchases through www.myalabamataxes.alabama.gov using the instructions provided above. The return may then be filed as usual.

***All Consumer's Use Tax returns are due on the 20th of the month following the month in which purchases were made (i.e., the return for the month of June is due July 20th, etc. There are 20 days to file the return before it is deemed late.)

***Any penalty waiver requests may be directed to the Sales and Use Tax Division at 1-866-576-6531. Only one waiver per 18 month period is allowed.

ALABAMA DEPARTMENT OF FINANCE
CONSTRUCTION MANAGEMENT DIVISION
ADMINISTRATIVE CODE

CHAPTER 355-16-1
COLLECTION OF USER FEES

TABLE OF CONTENTS

ED NOTE: THE RULES OF THE BUILDING COMMISSION, CHAPTER 170-X-8, WERE TRANSFERRED TO THE DEPARTMENT OF FINANCE PURSUANT TO ACT 2015-435.

355-16-1-.01 Applicability. The following procedures and user fees are applicable to new construction, additions, or alteration projects for buildings under the jurisdiction of the Alabama Division of Construction Management as defined by the Code of Ala. 1975, Title 41, Section 41-9-162 and authorized by Section 41-4-400(a)(7).
Author: Frank Barnes
Statutory Authority: Code of Ala. 1975, §41-4-400(a)(7).
History: New Rule: Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.02 Calculation Of Basic Plan Review And Permit Fees.

Construction Cost	Basic Plan Review Fee	Basic Permit Fee
Less than $1000	No fee.	No fee, unless inspection required, in which case a $15.00 fee for each inspection shall be charged.
$1,001 to $50,000	One-half of the permit fee which is $15.00 for the first $1,000.00 plus $5.00 for each additional thousand or fraction thereof, to and including $50,000.00.	$15.00 for the first $1,000.00 plus $5.00 for each additional thousand or fraction thereof, to and including $50,000.00.
$50,001 to $100,000	One-half of the permit fee which is $260.00 for the first $50,000.00 plus $4.00 or each additional thousand or fraction thereof, to and including $100,000.00.	$260.00 for the first $50,000.00 plus $4.00 or each additional thousand or fraction thereof, to and including $100,000.00.
$100,001 to $500,000	One-half of the permit fee which is $460.00 for the first $100,000.00 plus $3.00 for each additional thousand or fraction thereof, to and including $500,000.00.	$460.00 for the first $100,000.00 plus $3.00 for each additional thousand or fraction thereof, to and including $500,000.00.
$500,001 and up	One-half of the permit fee which is $1,660.00 for the first $500,000.00 plus $2.00 for each additional thousand or fraction thereof.	$1,660.00 for the first $500,000.00 plus $2.00 for each additional thousand or fraction thereof.

Construction Cost: Construction Cost shall include the cost of the actual building construction, addition, or alteration work, including sitework.
Authors: Katherine Lynn, Frank Barnes
Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).
History: New Rule: Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.03 Fees Required.

(1) The Basic Plan Review Fee, the Basic Permit Fee, and the Basic Contract Document Administration Fee are subject to the Final Reconciliation at the close of construction as described in Rule 355-16-1-.05.

(2) Basic Plan Review Fee: This fee includes review of Schematic, Preliminary, Final, and one revised Final Plan Submittal.

(a) If the first submittal of a new project is for a schematic or preliminary review, it shall be accompanied by ½ of the Basic Plan Review Fee not to exceed $500. Submittals sent in without this fee will not be reviewed until payment is received.

(b) The final submittal of each project shall be accompanied by a payment for the balance of the Basic Plan Review Fee. Submittals sent in without this final submittal fee will not be reviewed until payment is received.

(c) Written final plan review comments must be sent by the Division of Construction Management to the architect within 30 calendar days of receipt of the submittal. If the submittal is not reviewed within this time limitation, the balance of the Basic Plan Review Fee is waived.

(3) Basic Permit Fee: This fee shall include the following required major building inspections: Pre-Construction Conference, Pre-Roofing Conference, Above-Ceiling Inspection, Final Inspection, and Year-End Inspection. Additional required inspections such as fire alarm inspections, kitchen hood inspections, elevator inspections, and other such inspections shall be included as part of the Basic Permit Fee.

(a) The Basic Permit Fee is due upon approval or receipt of the Construction Contract. The Pre-Construction Conference will not be performed prior to receipt of the Basic Permit Fee.

(4) Basic Contract Document Administration Fee: The Basic Contract Document Administration Fee applies to contracts that are administered by the Division of Construction Management. The fee covers review of the Owner/Architect Agreement and Construction Contract along with related amendments, change orders, service invoices, and pay requests.

(a) Payment must be received before the associated contract is fully executed. The total fee is ½% of the Construction Cost and it is paid in the following 2 parts:

(i) ¼% of the Project Budget for the Owner/Architect Agreement

(ii) ¼% of the Construction Cost for the Construction Contract.

(5) Additional Fees:

(a) If more than one revised Final Plan Submittal is required, an additional fee shall be required for each additional revised submittal. This additional fee shall be equal to the lesser of the following: 15% of the Basic Plan Review Fee or $2000. The time restrictions and conditions which apply to routine submittals shall apply to additional submittals.

(b) If the contractor schedules an inspection and it is determined by the Division of Construction Management Inspector on site that the contractor has not met required benchmarks or the inspection is cancelled without 48-hours' notice, the Division of Construction Management shall require an additional fee of $1500. This additional inspection fee shall be applied to each additional inspection that is required to be rescheduled.

(c) Changes to plans for rebid or a significant revision in the scope of work may incur an additional fee, up to the amount of the Basic Plan Review Fee, based on the reviewers' evaluation of the extent of the changes reviewed.

(d) Projects owned and locally funded by municipality and county governments must be submitted for a review for compliance with the current ADA Standards for Accessible Design. The additional fee for this service is 50% of the Basic Plan Review Fee, with a maximum of $500.00. If more than one revised Final Plan Submittal is required, the fee for each additional review will be 15% of the Basic Plan Review Fee.

(e) In addition to the Schematic, Preliminary, and Final Review Submittals, the Owner may request an optional 65% Intermediate Review to include all systems of the project at a point that is less than 100% complete. The additional fee for this review will be 65% of the Basic Plan Review Fee.

(f) The Basic Contract Document Administration Fee includes review of the original submitted document and one revision. When more than one revision is required, an additional fee of $200 will be charged to the design professional for each additional document submittal until the document is executed.
Author: Frank Barnes
Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).
History: **New Rule:** Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.04 Payment Of Fees.

(1) The balance of the Basic Plan Review Fee payment shall be accompanied by the "Plan Review Fee Worksheet" and a copy of the architect's latest estimated Construction Cost. The cost estimate shall be the basis for calculating the estimated Basic Plan Review Fee on the fee worksheet.

(2) The Basic Permit Fee payment shall be accompanied by the completed "Permit Fee Worksheet" and a copy of the executed Construction Contract. The Construction Contract shall be the basis for calculating the total fee on the fee worksheet.

(3) Fee payments are nonrefundable to the extent that work has been performed by the Division of Construction Management.

(4) Fee payments shall be paid by either (i) check or money order made payable to "Alabama Department of Finance-Division of Construction Management," (ii) by an electronic means accepted by the Division of Construction Management, or (iii) an inter-agency transfer. Fees are deemed paid when the funds represented by the payment method are received by or made available to the Division of Construction Management.

(5) Check or money order payments shall be received only at the Division of Construction Management's office in Montgomery.
Authors: Katherine Lynn, Frank Barnes
Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).

History: New Rule: Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.05 Final Reconciliation Of Fees.

(1) Final Reconciliation: The Basic Plan Review Fee, the Basic Permit Fee, and the Basic Contract Document Administration Fee are paid based on the best estimate of the Construction Cost at the time each fee is due. When construction is complete, a Final Reconciliation will recalculate each of these fees using the actual Construction Cost. The Final Reconciliation will determine the amount due from or refunded to the Owner. The Owner has the final responsibility for payment of all fees.

(2) The actual Construction Cost for the final Basic Plan Review Fee shall be adjusted to include the lowest bid on any additive unawarded alternates from the bid tab. The actual Construction Cost for the final Basic Permit Fee and the final Basic Contract Document Administration Fee shall be adjusted for any change orders and for any sales-tax credit received by the Owner.

Author: Katherine Lynn
Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).
History: New Rule: Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Repealed and New Rule:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.06 Penalties. Where work, for which Division of Construction Management approval is required, is started or proceeds prior to obtaining said approval, the fees herein specified shall be doubled. The payment of such double fee shall not relieve any persons from fully complying with the requirements of the Division of Construction Management in the execution of the work nor from any other penalties prescribed herein.

Author: Frank Barnes
Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).

History: New Rule: Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.07 Contract Document Administration Fees. (REPEALED)
Author: Katherine Lynn
Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8.
History: New Rule: Filed August 7, 2014; effective September 11, 2014. **Repealed:** Published November 29, 2019; effective January 13, 2020.

1.3 WORK RESTRICTIONS

A. Contractor's Use of Premises: During construction, Contractor will have use of site indicated. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project.

B. Driveways, Walkways, and Entrances: Contractor may use existing driveway. Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

C. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

D. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

E. Examination of the site: By executing the Contract, the Contractor represents that he has performed the following actions (Failure to visit the site and perform the following actions does not relieve the Contractor or Subcontractor from their obligations, and no extra payment will be authorized for the work which can be determined by examination of the site and Contract Documents):

1. Visited the site;
2. Made allowances for contingencies or challenges to be encountered;
3. Reviewed Contract Documents, compared them with work in place;
4. Notified Architect of ambiguities, inconsistencies, or errors in the Contract Documents

F. In accordance within the General Conditions, each Subcontractor shall similarly represent that he/she has fulfilled the same responsibilities as the Contractor for examination of the site.

PART 2 - EXECUTION (Not Used)

END OF SECTION 011000

"General Decision Number: AL20220091 03/18/2022

Superseded General Decision Number: AL20210091

State: Alabama

Construction Type: Building
BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories)

County: Madison County in Alabama.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at https://www.dol.gov/agencies/whd/government-contracts.

Modification Number	Publication Date
0	01/07/2022
1	02/18/2022
2	02/25/2022
3	03/18/2022

* ASBE0078-001 09/30/2021

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 28.55	14.55

BOIL0108-001 01/01/2021

	Rates	Fringes
BOILERMAKER	$ 30.49	23.13

ELEC0558-001 12/01/2021

	Rates	Fringes
ELECTRICIAN	$ 30.10	4%+12.75

ENGI0312-001 10/01/2013

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Crane	$ 27.05	11.38
Forklift	$ 26.05	11.38

* SFAL0669-002 01/01/2022

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 28.33	20.30

* SUAL2015-019 08/02/2017

	Rates	Fringes
BRICKLAYER	$ 19.81	0.00
CARPENTER, Includes Form Work	$ 15.68	2.85
CEMENT MASON/CONCRETE FINISHER	$ 17.15	0.00
GLAZIER	$ 19.14	2.30
IRONWORKER, REINFORCING	$ 22.86	7.94
IRONWORKER, STRUCTURAL	$ 21.77	6.77
LABORER: Common or General	$ 11.47 **	1.45
LABORER: Mason Tender - Brick	$ 11.00 **	0.00
LABORER: Mason Tender - Cement/Concrete	$ 13.24 **	0.00
LABORER: Pipelayer	$ 13.88 **	0.00

OPERATOR:
Backhoe/Excavator/Trackhoe.....$ 16.00 0.00

OPERATOR: Bulldozer.....$ 18.59 0.00

OPERATOR: Grader/Blade.....$ 17.52 0.89

OPERATOR: Loader.....$ 14.69 ** 0.00

OPERATOR: Roller.....$ 14.00 ** 1.78

PAINTER (Brush and Roller).....$ 15.29 5.68

PAINTER: Spray.....$ 14.31 ** 0.00

PIPEFITTER, Includes HVAC
Pipe Installation.....$ 20.48 5.50

PLUMBER, Excludes HVAC Pipe
Installation.....$ 20.00 4.82

ROOFER.....$ 13.66 ** 0.00

SHEET METAL WORKER, Includes
HVAC Duct Installation.....$ 19.15 3.97

TILE SETTER.....$ 20.00 0.00

TRUCK DRIVER: Dump Truck.....$ 13.60 ** 0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($15.00) or 13658 ($11.25). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at
https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

SECTION 012000 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 PAYMENT PROCEDURES

A. Submit a Schedule of Values before the initial Application for Payment. Coordinate the schedule of values with Contractor's construction schedule.

1. Arrange schedule of values consistent with format of ABC Form C-11 Progress Schedule.
2. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

B. Application for Payment Forms: Use ABC Forms C-10 and C-11 as form for Applications for Payment.

C. Submit three copies of each application for payment according to the schedule established in Owner/Contractor Agreement.

1. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor.
2. With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
3. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012000

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

B. Types of allowances include Lump-sum allowances.

1.2 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.

1.3 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

D. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.4 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, insurance, equipment rental, and similar costs.

C. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.5 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include [**taxes,**]freight[**,**] and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Allowance No. 1: Owner's Contingency Allowance: Include an Owner's contingency allowance of $10,000 for use as directed by Owner's written instructions.

B. Allowance No. 2: Lump-Sum Allowance: Include the sum of $5000.00 for two lab sinks"

C. Allowance No. 2: Lump-Sum Allowance: Include the sum of $30,000.00 for a fire alarm system, as specified in Section 283100 "Fire Detection and Alarm System."

1. This allowance includes material, receiving, handling, and installation costs, and Contractor overhead and profit.

END OF SECTION 012100

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUBSTITUTION PROCEDURES

A. Substitutions include changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Identify product to be replaced and show compliance with requirements for substitutions. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified, a list of changes needed to other parts of the Work required to accommodate proposed substitution, and any proposed changes in the Contract Sum or the Contract Time should the substitution be accepted.

C. Architect will review proposed substitutions and notify Contractor of their acceptance or rejection. If necessary, Architect will request additional information or documentation for evaluation.

1. Architect will notify Contractor of acceptance or rejection of proposed substitution within 7 days of receipt of request.

D. Do not submit unapproved substitutions on Shop Drawings or other submittals.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 CONTRACT MODIFICATION PROCEDURES

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

B. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work.

1. Proposal Requests are not instructions either to stop work in progress or to execute the proposed change.
2. Within 7 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time.

C. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

D. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on ABC Form C-12, for all changes to the Contract Sum or the Contract Time.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

A. Key Personnel Names: Within seven days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. List e-mail addresses and telephone numbers.

B. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work.

1.2 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic digital data files of selected portions of the Contract Drawings may be provided by Architect for Contractor's use in preparing engineering drawings for the steel framing, subject to signing Architect’s Data Release form and a $100 coordination fee.

B. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
2. Submit three copies of each action submittal. Architect will return two copies.
3. Architect will discard submittals received from sources other than Contractor.

C. Paper Submittals: Place a permanent label or title block on each submittal for identification. Include the following information on the label:

1. Project name.
2. Date.
3. Name and address of Contractor.
4. Name and address of subcontractor or supplier.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with unique identifier, including project identifier, Specification Section number, and revision identifier.

E. Identify options requiring selection by Architect.

F. Identify deviations from the Contract Documents on submittals.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections.

1. Submit electronic submittals via email as PDF electronic files.

a. Architect will return annotated file. Annotate and retain one printed copy of file for inclusion in the Project record.

2.2 ACTION SUBMITTALS

A. Submit three paper copies of each submittal unless otherwise indicated. Architect will return two copies.

B. Product Data: Mark each copy to show applicable products and options. Include the following:

1. Manufacturer's written recommendations, product specifications, and installation instructions.
2. Wiring diagrams showing factory-installed wiring.
3. Printed performance curves and operational range diagrams.
4. Testing by recognized testing agency.
5. Compliance with specified standards and requirements.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches. Include the following:

1. Dimensions and identification of products.
2. Fabrication and installation drawings and roughing-in and setting diagrams.
3. Wiring diagrams showing field-installed wiring.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.

D. Samples: Submit Samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.

2.3 DELEGATED DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and indicate date by which recovery will be accomplished.

PART 3 - EXECUTION

3.1 SUBMITTAL REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Architect will review each action submittal, make marks to indicate corrections or modifications required, will stamp each submittal with an action stamp, and will mark stamp appropriately to indicate action.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

3.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Distribute copies of approved schedule to Owner, Architect, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.

END OF SECTION 013000

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

B. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements, comply with the most stringent requirement. Refer uncertainties to Architect for a decision.

C. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum. The actual installation may exceed the minimum within reasonable limits. Indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision.

D. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

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

F. Testing Agency Qualifications: An independent agency with the experience and capability to conduct testing and inspecting indicated; and where required by authorities having jurisdiction, that is acceptable to authorities.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

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

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

B. Abbreviations and Acronyms: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
3. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
4. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
5. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
6. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
7. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
8. AGA - American Gas Association; www.aga.org.
9. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
10. AIA - American Institute of Architects (The); www.aia.org.
11. AISC - American Institute of Steel Construction; www.aisc.org.
12. AISI - American Iron and Steel Institute; www.steel.org.
13. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
14. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
15. ANSI - American National Standards Institute; www.ansi.org.
16. API - American Petroleum Institute; www.api.org.
17. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
18. ARI - American Refrigeration Institute; (See AHRI).
19. ASCE - American Society of Civil Engineers; www.asce.org.
20. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
21. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
22. ASSE - American Society of Safety Engineers (The); www.asse.org.
23. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
24. ASTM - ASTM International; (American Society for Testing and Materials International); www.astm.org.
25. AWS - American Welding Society; www.aws.org.
26. AWWA - American Water Works Association; www.awwa.org.
27. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
28. BICSI - BICSI, Inc.; www.bicsi.org.
29. C 78 − Test Method for Flexural Strength of Concrete (Using Simple Beam with Third−PointLoading).

30. C 109 − Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2−inch or50−mm Cube Specimens).
31. C 266 − Test Method for Time of Setting of Hydraulic Cement Paste by Gillmore Needles.
32. C 348 − Test Method for Flexural Strength of Hydraulic Cement Mortars.
33. C 672 − Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals.
34. C 881 − Specification for Epoxy−Resin Base Bonding Systems for Concrete.
35. C 882 − Test Method for Bond−Strength of Epoxy−Resin Systems Used with Concrete.
36. C 883 − Test Method for Effective Shrinkage of Epoxy−Resin Systems Used with Concrete.
37. C 928 − Specifications for Packaged, Dry, Rapid−Hardening Cementitious Materials for ConcreteRepairs.
38. C 944 − Standard Test Method for Abrasion Resistance of Concrete or Mortar Surfaces by theRotary−Cutter Method.
39. C 1059 − Specification for Latex Agents for Bonding Fresh to Hardened Concrete.
40. CDA - Copper Development Association; www.copper.org.
41. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
42. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
43. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
44. CPA - Composite Panel Association; www.pbmdf.com.
45. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
46. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
47. D 570 − Test Method for Water Absorption of Plastics.
48. D 638 − Test Method for Tensile Properties of Plastics.
49. D 695 − Test Method for Compressive Properties of Rigid Plastics.
50. D 790 − Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
51. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
52. DHI - Door and Hardware Institute; www.dhi.org.
53. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
54. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
55. EVO - Efficiency Valuation Organization; www.evo-world.org.
56. FM Approvals - FM Approvals LLC; www.fmglobal.com.
57. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
58. FSA - Fluid Sealing Association; www.fluidsealing.com.
59. GA - Gypsum Association; www.gypsum.org.
60. HI - Hydraulic Institute; www.pumps.org.
61. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
62. IAS - International Accreditation Service; www.iasonline.org.
63. ICBO - International Conference of Building Officials; (See ICC).
64. ICC - International Code Council; www.iccsafe.org.
65. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
66. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
67. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
68. IESNA - Illuminating Engineering Society of North America; (See IES).
69. ISO - International Organization for Standardization; www.iso.org.
70. MBMA - Metal Building Manufacturers Association; www.mbma.com.
71. MCA - Metal Construction Association; www.metalconstruction.org.

72. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
73. MHIA - Material Handling Industry of America; www.mhia.org.
74. MMPA - Moulding & Millwork Producers Association; (Formerly: Wood Moulding & Millwork Producers Association); www.wmmpa.com.
75. MPI - Master Painters Institute; www.paintinfo.com.
76. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
77. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
78. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
79. NCMA - National Concrete Masonry Association; www.ncma.org.
80. NEBB - National Environmental Balancing Bureau; www.nebb.org.
81. NECA - National Electrical Contractors Association; www.necanet.org.
82. NEMA - National Electrical Manufacturers Association; www.nema.org.
83. NETA - International Electrical Testing Association; www.netaworld.org.
84. NFHS - National Federation of State High School Associations; www.nfhs.org.
85. NFPA - NFPA; (National Fire Protection Association); www.nfpa.org.
86. NLGA - National Lumber Grades Authority; www.nlga.org.
87. NRCA - National Roofing Contractors Association; www.nrca.net.
88. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
89. NSF - NSF International; (National Sanitation Foundation International); www.nsf.org.
90. NSPE - National Society of Professional Engineers; www.nspe.org.
91. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org
92. PDI - Plumbing & Drainage Institute; www.pdionline.org.
93. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
94. SAE - SAE International; (Society of Automotive Engineers); www.sae.org.
95. SDI - Steel Deck Institute; www.sdi.org.
96. SDI - Steel Door Institute; www.steeldoor.org.
97. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
98. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
99. SPIB - Southern Pine Inspection Bureau; www.spib.org.
100. SSINA - Specialty Steel Industry of North America; www.ssina.com.
101. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
102. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
103. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
104. TIA - Telecommunications Industry Association; (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
105. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
106. TMS - The Masonry Society; www.masonrysociety.org.
107. TPI - Truss Plate Institute; www.tpinst.org.
108. UL - Underwriters Laboratories Inc.; www.ul.com.
109. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
110. WASTEC - Waste Equipment Technology Association; www.wastec.org.
111. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
112. WDMA - Window & Door Manufacturers Association; www.wdma.com.

113. WI - Woodwork Institute; (Formerly: WIC - Woodwork Institute of California); www.wicnet.org.
114. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
115. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

1. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
2. ICC - International Code Council; www.iccsafe.org.
3. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Use Charges: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated.

B. Water and Electric Power: Provided by Contractor, separate from Owner's water and power.

C. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Provide field offices, storage and fabrication sheds, and other support facilities as necessary for construction operations. Store combustible materials apart from building.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service. Arrange with Owner for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

C. Heating and Cooling: Provide temporary heating and cooling as required for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity.

D. Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

3.2 SUPPORT FACILITIES INSTALLATION

A. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

C. Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

3.4 MOISTURE AND MOLD CONTROL

A. Protect stored and installed material from flowing or standing water.

B. After installation of weather barriers but before full enclosure and conditioning of building, protect as follows:

1. Do not load or install drywall or porous materials into partially enclosed building.
2. Discard water-damaged material.
3. Do not install material that is wet.
4. Discard, replace, or clean stored or installed material that begins to grow mold.
5. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

3.5 OPERATION, TERMINATION, AND REMOVAL

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

B. Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion.

C. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period.

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

B. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Architect will review the proposed product and notify Contractor of its acceptance or rejection.

C. Compatibility of Options: If Contractor is given option of selecting between two or more products, select product compatible with products previously selected.

D. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
4. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

E. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. Provide products that comply with the Contract Documents, are undamaged, and, unless otherwise indicated, are new at the time of installation.

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

2.2 COMPARABLE PRODUCTS

A. Architect will consider Contractor's request for comparable products when the following conditions are satisfied:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications.
3. List of similar installations for completed projects, if requested.
4. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 EXECUTION REQUIREMENTS

A. Cutting and Patching:

1. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
2. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

1.2 CLOSEOUT SUBMITTALS

A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

B. Certified List of Incomplete Items: Final submittal at Final Completion.

C. Operation and Maintenance Data: Submit one copy of manual.

1.3 SUBSTANTIAL COMPLETION PROCEDURES

A. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

B. Submittals Prior to Substantial Completion: Before requesting Substantial Completion inspection, complete the following:

1. Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other sections, including project record documents, operation and maintenance manuals, property surveys, similar final record information, warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
3. Submit maintenance material submittals specified in other sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect.
4. Submit test/adjust/balance records.
5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Before requesting Substantial Completion inspection, complete the following:

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Advise Owner of changeover in heat and other utilities.
6. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
7. Remove temporary facilities and controls.
8. Complete final cleaning requirements, including touchup painting.
9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

1.4 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting inspection for determining final completion, complete the following:

1. Submit a final Application for Payment.
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

PART 2 - PRODUCTS

2.1 MATERIALS

A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

B. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

2.2 OPERATION AND MAINTENANCE DOCUMENTATION

A. Directory: Prepare a single, comprehensive manual of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Unless otherwise indicated, organize manual into separate sections for each system and subsystem, and separate sections for each piece of equipment not part of a system.

2.3 RECORD DRAWINGS

A. Record Prints: Maintain a set of prints of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued. Mark to show actual installation where installation varies from that shown originally. Accurately record information in an acceptable drawing technique.

1. Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

B. Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance.

1. Verify compatibility with and suitability of substrates.
2. Examine roughing-in for mechanical and electrical systems.
3. Examine walls, floors, and roofs for suitable conditions.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Take field measurements as required to fit the Work properly. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication.

E. Verify space requirements and dimensions of items shown diagrammatically on Drawings.

F. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for preparation of substrates to receive subsequent work.

3.2 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations.

C. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

D. Use products, cleaners, and installation materials that are not considered hazardous.

3.3 CUTTING AND PATCHING

A. Provide temporary support of work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

D. Cutting: Cut in-place construction using methods least likely to damage elements retained or adjoining construction.

1. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

E. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction in a manner that will minimize evidence of patching and refinishing.

3.4 CLEANING

A. Clean Project site and work areas daily, including common areas. Dispose of materials lawfully.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
3. Remove debris from concealed spaces before enclosing the space.

B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
2. Sweep paved areas broom clean. Remove spills, stains, and other foreign deposits.
3. Remove labels that are not permanent.
4. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances.
5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and foreign substances. Clean plumbing fixtures. Clean light fixtures, lamps, globes, and reflectors.
6. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

3.5 OPERATION AND MAINTENANCE MANUAL PREPARATION

A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

3.6 DEMONSTRATION AND TRAINING

A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

END OF SECTION 017000

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Items indicated to be removed and salvaged remain Owner's property. Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner. Include fasteners or brackets needed for reattachment elsewhere.

B. Predemolition Photographs: Show existing conditions of adjoining construction and site improvements. Submit before Work begins.

C. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

D. It is not expected that hazardous materials will be encountered in the Work. If hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with EPA regulations and with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 DEMOLITION

A. Maintain services/systems indicated to remain and protect them against damage. Before proceeding with demolition, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of the building.

B. Locate, identify, shut off, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

C. Provide temporary weather protection to prevent water leakage and damage to structure and interior areas.

D. Requirements for Building Reuse:

1. Maintain existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and nonstructural roofing material) not indicated to be demolished; do not demolish such existing construction beyond indicated limits.
2. Maintain existing interior nonstructural elements (interior walls, doors, floor coverings, and ceiling systems) not indicated to be demolished; do not demolish such existing construction beyond indicated limits.

E. Remove demolition waste materials from Project site. Do not burn demolished materials.

F. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Sealer product data.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Comply with ACI 301, "Specification for Structural Concrete," and with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

2.2 MATERIALS

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain Steel Wire: ASTM A 82, as drawn.

C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, as drawn, flat sheet.

D. Portland Cement: ASTM C 150, Type I or II.

E. Aggregates: ASTM C 33, coarse aggregate or better, graded, maximum 3/4 inch nominal.

F. Air-Entraining Admixture: ASTM C 260.

G. Chemical Admixtures: ASTM C 494]. Do not use calcium chloride or admixtures containing calcium chloride.

H. Vapor Retarder: Reinforced sheet, ASTM E 1745, Class A.

I. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

2.3 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301.

B. Normal-Weight Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M.

1. Minimum Compressive Strength: 3000 psi at 28 days.

2. Slump Limit: 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
3. Air Content: Maintain within range permitted by ACI 301.
4. For concrete exposed to deicing chemicals, limit use of fly ash to 25 percent replacement of portland cement by weight and granulated blast-furnace slag to 40 percent of portland cement by weight; silica fume to 10 percent of portland cement by weight.

2.4 SEALERS

A. BASIS-OF DESIGN PRODUCTS: Polyurethane or polyester polymer/polyurethane mix, safe for indoor or exterior use. Acceptable products include, but are not limited to, the following:
   1. Trojan Masonry & Concrete Sealer by Eco-Wares/Envirosafe Mfg, West Melbourne, FL.
   2. Eco-Crete HF by Tennant Coatings

B. Sealer shall have the following minimum performance:
   1. Flash Point: non-flammable
   2. Freezing Point: 0 degrees Celsius / 32 degrees Fahrenheit Water
   3. Freeze Thaw Resistance: Improved verifiable resistance under test conditions.

C. Joint Filler: Polished Concrete System approved semi-rigid, 2-component, self-leveling, 100%

PART 3 - EXECUTION

3.1 CONCRETING

A. Place vapor retarder on prepared subgrade, with joints lapped 6 inches sealed.

B. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

C. Formed Surface Finish: Smooth-formed finish for concrete exposed to view, coated, or covered by waterproofing or other direct-applied material; rough-formed finish elsewhere.

D. Cure formed surfaces by moisture curing for at least seven days.

E. Owner will engage a testing agency to perform field tests and to submit test reports.

F. Protect concrete from damage. Repair and patch defective areas.

END OF SECTION 033000

SECTION 033511 – CONCRETE FLOOR FINISHES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals:
   1. Product Data: Manufacturer's technical literature for each product specified or required. Include manufacturer's technical data, application instructions, and recommendations.
   2. Certification of Mix Design by Polished Concrete Applicator.
   3. Finishing Equipment: Provide equipment type, size, role in finishing process, and demonstrate suitability of specific equipment.
   4. Slip Resistance of Finished Floor: Test data for representative sample of similarly finished concrete using applicator's system and equipment, demonstrating compliance with slip resistance requirements.

B. Delivery, Storage, And Handling: Deliver materials in manufacturer's sealed packaging, including application instructions.

C. Field Conditions
   1. Damage and Stain Prevention: Take precautions to prevent damage and staining of concrete surfaces to be treated.
   2. Environmental limitations: Comply with manufacturers written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting polished concrete flooring performance.

PART 2 - PRODUCTS

2.1 ACCESSORIES

A. Repair Material: A product that is designed to repair cracks and surface imperfections. The specified material must have sufficient bonding capabilities to adhere after the polishing to the concrete surface and provide abrasion resistance equal to or greater than the surrounding concrete substrate.

B. Grout Material: A thin mortar used for filling spaces. Acceptable products shall be:
   1. Epoxy, urethane, polyrea, or polyaspartic resins.
   2. Latex or acrylic binders mixed with cement dust from previous grinding steps.
   3. Silicate binders mixed with cement dust from previous grinding steps.

2.2 GRINDING AND POLISHING EQUIPMENT

A. Field Grinding and Polishing Equipment patching and repairing concrete:
   1. If dry grinding, honing, or polishing, use dust extraction equipment with flow rate suitable for dust generated, with squeegee attachments.

2. If wet grinding, honing, or polishing, use slurry extraction equipment suitable for slurry removal and containment prior to proper disposal.

B. Edge Grinding and Polishing Equipment: Hand-held or walk-behind machines which produces same results, without noticeable differences, as field grinding and polishing equipment.

2.3 SEALERS, DENSIFIERS AND HARDENERS

A. ACCEPTABLE PRODUCTS: Products include but are not limited to, the following:

1. Trojan Masonry & Concrete Sealer by Eco-Wares/Envirosafe Mfg, West Melbourne, FL.
2. Eco-Crete HF by Tennant Coatings
3. Consolideck LS and Consolideck PolishGuard by Prosoco.

B. Sealer shall have the following minimum performance:
1. Flash Point: non-flammable
2. Freezing Point: 0 degrees Celsius / 32 degrees Fahrenheit Water
3. Freeze Thaw Resistance: Improved verifiable resistance under test conditions.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Verify according to requirements of the structural specifications, that floor surfaces are acceptable to receive the work.

3.2 PREPARATION

A. Prepare and clean concrete surfaces. Provide concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, paint splatter, rust, and other contaminant incompatible with liquid applied products and polishing.

B. Vapor Testing Concrete Floors
1. Alkalinity Test Method: Measure pH according to method indicated in ASTM F710. Acceptable results: pH between 8 and 10.
2. Moisture Vapor Transmission Rate:
   a. Test Method: Perform anhydrous calcium chloride test according to ASTM F 1869.
   b. Acceptable results: Not more than 5 pounds per 1,000 square feet in 24 hours.
3. Relative Humidity:
   a. Test Method: Perform relative humidity test using in situ probes according to ASTM F 2170.
   b. Acceptable results: Not more than 75 percent.

END OF SECTION 033511

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. See Section 055000 "Metal Fabrications" for furnishing steel lintels and shelf angles for unit masonry.

B. Submittals:

1. Samples for brick and mortar.

PART 2 - PRODUCTS

2.1 UNIT MASONRY

A. Comply with TMS 602/ACI 530.1/ASCE 6.

2.2 MASONRY UNITS

A. Concrete Masonry Units: ASTM C 90; Density Classification, Normal Weight.

1. Integral water repellent.
2. Special shapes for lintels, corners, jambs, sash, control joints, and other special conditions.

B. Clay Face Brick: ASTM C 216 Grade MW or SW.

1. Size: 3-5/8 inches wide by 2-1/4 inches high by 7-5/8 inches long.
2. Appearance to match existing brick to greatest extent possible, pending approval by Architect.

2.3 MORTAR AND GROUT

A. Mortar: ASTM C 270, proportion specification.

1. Use masonry cement mortar.
2. Do not use calcium chloride in mortar.
3. For masonry below grade or in contact with earth, use Type M.
4. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions, and for other applications where another type is not indicated, use Type N.
5. Water-Repellent Additive: For mortar used with concrete masonry units made with integral water repellent, use product recommended by manufacturer of units.

B. Grout: ASTM C 476 with a slump of 8 to 11 inches.

2.4 REINFORCEMENT, TIES, AND ANCHORS

A. Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.

B. Joint Reinforcement: ASTM A 951/A 951M.

1. Coating: Hot-dip galvanized.
2. Wire Size for Side Rods, cross rods and veneer ties: 0.148-inch diameter.
3. For single-wythe masonry, provide either ladder design or truss design.

C. Veneer Anchors: Hot-dip galvanized or stainless-steel, two-piece adjustable masonry veneer anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to studs, and acceptable to authorities having jurisdiction.

2.5 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded strips complying with ASTM D 1056, Grade 2A1.

B. Preformed Control-Joint Gaskets: Designed to fit standard sash block and to maintain lateral stability in masonry wall; made from styrene-butadiene rubber or PVC.

C. Molded-Polystyrene Insulation Units: ASTM C 578, Type I; specially shaped units designed for installing in cores of concrete masonry units.

D. Proprietary Acidic Masonry Cleaner: Product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cut masonry units with saw. Install with cut surfaces and, where possible, cut edges concealed.

B. Mix units for exposed unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.

C. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

D. Stopping and Resuming Work: Step back units; do not tooth.

E. Fill cores in hollow concrete masonry units with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

F. Build nonload-bearing interior partitions full height and install compressible filler in joint between top of partition and underside of structure above.

G. Tool exposed joints slightly concave when thumbprint hard unless otherwise indicated.

3.2 CLEANING

A. Clean masonry as work progresses. Remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly cured, clean exposed masonry.

1. Wet wall surfaces with water before applying acidic cleaner, then remove cleaner promptly by rinsing thoroughly with clear water.
2. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

END OF SECTION 042000

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Section includes incidental concealed blocking in wall or roof openings, and grounds; wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

PART 2 - PRODUCTS

2.1 GENERAL

A. Lumber: Provide dressed lumber, S4S, marked with grade stamp of inspection agency.

B. Miscellaneous Dimension Lumber: Construction, or No. 2 Standard, Stud, or No. 3 grade with 15-19 percent maximum moisture content of any species. Provide for nailers, blocking, and similar members.

C. Equipment Backing Panels: Plywood, Exterior, AC, fire-retardant treated, not less than 3/4-inch nominal thickness.

D. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

E. Power-Driven Fasteners: CABO NER-272.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set miscellaneous rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Securely attach miscellaneous rough carpentry to substrates, complying with the following:

1. CABO NER-272 for power-driven fasteners.

END OF SECTION 061053

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes Glass-fiber blanket insulation.

1.2 SUBMITTALS

A. Product Data for Glass-fiber blanket insulation, including manufacturer and R-value of insulation installed in each element of the building thermal envelope.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Maximum flame-spread and smoke-developed indexes less than 25 and 450 when tested in accordance with ASTM E84.

B. Thermal-Resistance Value (R-Value): R-19 in accordance with ASTM C518.

2.2 GLASS-FIBER BLANKET INSULATION

A. Glass-Fiber Blanket Insulation, Vinyl Faced: ASTM C665, Category 1 (membrane is a vapor barrier), faced with foil-scrim polyethylene.

2.3 ACCESSORIES

A. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.

B. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Remove old insulation by cutting in a clean line.

B. Clean area where damaged insulation has been removed prior to install new insulation.

C. Comply with insulation manufacturer's written instructions applicable to products and applications.

D. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

E. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

F. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

END OF SECTION 072100

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and color Samples (for exposed uses).

B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

A. Low-Emitting Materials: Sealants shall comply with the following limits for VOC content:

1. Architectural Sealants: 250 g/L.
2. Other Sealants: 420 g/L.
3. Sealant Primers for Nonporous Substrates: 250 g/L.
4. Sealant Primers for Porous Substrates: 775 g/L.
5. Other Sealant Primers: 750 g/L.

B. Low-Emitting Materials:

1. Exterior reactive sealants shall have a VOC content of not more than 50 g/L or 4 percent by weight, whichever is greater.
2. Other exterior caulks and sealants shall have a VOC content of not more than 30 g/L or 2 percent by weight, whichever is greater.
3. Interior sealants shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.

D. Sealant for General Exterior Use Where Another Type Is Not Specified, one of the Following:

1. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use NT.

2. Single-component, nonsag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and for Use NT.

3. Single-component, nonsag polysulfide sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use NT.

E. Sealant for Exterior Traffic-Bearing Joints, Where Slope Allows Use of Pourable Sealant:

1. Single-component, pourable urethane sealant, ASTM C 920, Type S; Grade P; Class 25; for Use T.

F. Sealant for Use in Interior Joints in Ceramic Tile and Other Hard Surfaces in Toilet Rooms and around Plumbing Fixtures:

1. Single-component, mildew-resistant silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use NT; formulated with fungicide.

G. Sealant for Interior Use at Perimeters of Door and Window Frames:

1. Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

2.2 MISCELLANEOUS MATERIALS

A. Provide sealant backings of materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 1193.

B. Install sealant backings to support sealants during application and to produce cross-sectional shapes and depths of installed sealants that allow optimum sealant movement capability.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Shop Drawings.

PART 2 - PRODUCTS

2.1 HOLLOW METAL DOORS AND FRAMES

A. Doors: Complying with SDI A250.8 for level and model and SDI A250.4 for physical-endurance level indicated, 1-3/4 inches thick unless otherwise indicated.

B. Exterior Doors: Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush), metallic-coated steel sheet faces.

C. Interior Doors: Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).

D. Frames: ANSI A250.8; conceal fastenings unless otherwise indicated.

1. Steel Sheet for Interior Frames: 0.042-inch-minimum thickness.
2. Steel Sheet for Exterior Frames: 0.053-inch-minimum thickness.
3. Interior Frame Construction: Face welded.
4. Exterior Frame Construction: Face welded.
5. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.
6. Frame Anchors: Not less than 0.042 inch thick.

E. Glazing Stops: Nonremovable stops on outside of exterior doors and on secure side of interior doors; screw-applied, removable, glazing stops on inside, fabricated from same material as door face sheet in which they are installed.

F. Door Louvers: Sight proof per SDI 111C.

G. Door Silencers: Three on strike jambs of single-door frames and two on heads of double-door frames.

H. Grout Guards: Provide where mortar might obstruct hardware operation.

I. Prepare doors and frames to receive mortised and concealed hardware according to SDI A250.6 and BHMA A156.115.

J. Reinforce doors and frames to receive surface-applied hardware.

K. Prime Finish: Manufacturer's standard, factory-applied coat of lead- and chromate-free primer complying with SDI A250.10 acceptance criteria.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, free of scale, pitting, or surface defects.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M.

D. Frame Anchors: ASTM A 879/A 879M, 4Z coating designation; mill phosphatized.

1. For anchors built into exterior walls, sheet steel complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install hollow metal frames to comply with SDI A250.11.

B. Install doors to provide clearances between doors and frames as indicated in SDI A250.11.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying rust-inhibitive primer.

END OF SECTION 081113

SET-1

1	Continuous Hinge	HD1100A 83"		NA
1	Exit Device	2803 X C03 36" 8'0" CD SNB (2)	630	PR
1	Mortise Cylinder	1E-74 PATD PREFERRED PATENTED KEYING	626	BE
1	Rim Cylinder	12E-72 PATD PREFERRED PATENTED KEYING	626	BE
1	Door Pull	AP423 72" 4	710CU	TR
1	Closer	8916 DS DP89	689	DM
1	Door Position Switch	DPS BY SECURITY CONTRACTOR		VA01
1	Gasketing	C627 A 36"		NA
1	Drip Cap	16 A 40"		NA
1	Door Sweep	97 V 36"		NA
1	Threshold	896 S 36" 10-24 MS/LA	AL	NA

SET-2

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Lockset	45H-7D14H PATD PREFERRED PATENTED KEYING	626	BE
1	Closer	8916 IS SN1	689	DM
1	Kick Plate	K0050 10" x 34" B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CX	626	TR
1	Gasketing	5050 C-21 21'		NA

SET-3

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Door Pull	ROCKWOOD 111 1” x 10” (OR EQUAL)	26D	
1	Push Plate	ROCKWOOD 70F 8” x 16” (OR EQUAL)		
1	Closer	8916 IS SN1	689	DM
1	Kick Plate	K0050 10" x 35" B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CX	626	TR
1	Gasketing	5050 C-21 21'		NA

SET-4

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Privacy Set	45H-0L14H VIB	626	BE
1	Mop Plate	KM050 6" x 35" B4E-HEAVY-KP CSK	630	TR
1	Kick Plate	K0050 10" x 34" B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Gasketing	5050 C-21 21'		NA

SET-5

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Lockset	45H-7AT14H PATD PREFERRED PATENTED KEYING	630	BE
1	Wall Bumper	1270CX	626	TR
1	Gasketing	5050 C-21 21'		NA

SET-6

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Privacy Set	45H-0L14H VIB	626	BE
1	Mop Plate	KM050 6" x 35" B4E-HEAVY-KP CSK	630	TR
1	Kick Plate	K0050 10" x 34" B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Coat Hook	3071-1	626	TR
1	Gasketing	5050 C-21 21'		NA

SET-7

2	Continuous Hinge	HD1100A 83"		NA
1	Exit Device	C LS TS 2802 36" 8'0" CD SNB (2)	630	PR
1	Exit Device	C LS MLR TS 2803 X C03 36" 8'0" SNB (2)	630	PR
1	Mortise Cylinder	1E-74 PATD PREFERRED PATENTED KEYING	626	BE
1	Rim Cylinder	12E-72 PATD PREFERRED PATENTED KEYING	626	BE
2	Door Pull	AP423 72" 4	710CU	TR
2	Closer	8916 DS DP89	689	DM
1	Door Position Switch	DPS BY SECURITY CONTRACTOR		VA01
1	Power Supply	RPSMLR2BB		PR
1	CARD READER BY OTHERS	CARD READER BY OTHERS		VA01
1	Power Supply	POWER SUPPLY BY SECURITY CONTRACTOR		VA01
2	Harness	WH-192P		ST
2	Harness	WH-26P		ST
2	Harness	WH-6E		ST
2	Power Transfer	EPT-12C		PR

SET-8

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Exit Device	2803 X C03 36" 8'0" CD SNB (2)	630	PR
1	Door Pull	AP423 72" 4	710CU	TR
1	Closer	8916 DS DP89	689	DM
1	Gasketing	C627 A 36"		NA
1	Kick Plate	K0050 10" x 35" B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CX	626	TR

END OF SECTION 08710-5

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Hardware schedule, if different from schedule in this Section. Submit to Architect per Section Specification “Substitutions.”

PART 2 - PRODUCTS

2.1 HARDWARE

A. Hinges: Per Part 3.3 Hardware Sets.

B. Proprietary Locksets and Latchsets: Per Part 3.3 Hardware Sets.

1. BHMA A156.2, Series 4000, Grade 1 for bored locks and latches.
2. BHMA A156.3, Grade 1 for exit devices.
3. BHMA A156.5, Grade 1 for auxiliary locks.
4. BHMA A156.12, Series 5000, Grade 1 for interconnected locks and latches.
5. BHMA A156.13, Series 1000, Grade 1 for mortise locks and latches.
6. Lever handles on locksets and latchsets.
7. Provide trim on exit devices matching locksets.

C. Key locks to Owner's new master-key system.

1. Cylinders with five-pin or six-pin tumblers.
2. Provide cylinders for overhead doors and other locking doors that do not require other hardware.
3. Provide construction keying.

D. Closers:

1. Mount closers on interior side (room side) of door opening. Provide regular-arm, parallel-arm, or top-jamb-mounted closers as necessary.
2. Adjustable delayed opening (accessible to people with disabilities) feature on closers.

E. Provide wall stops or floor stops for doors without closers.

F. Hardware Finishes:

1. Hinges: Matching finish of lockset/latchset.
2. Locksets, Latchsets, and Exit Devices: Satin chrome plated.
3. Closers: Matching finish of lockset/latchset.

PART 3 - EXECUTION

3.1 INSTALLATION

1. Mount hardware in locations required to comply with governing regulations and according to SDI A250.8 and DHI WDHS.3.
2. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet.
3. Deliver keys to Owner.

3.2 HARDWARE SCHEDULE

A. Weatherstripping and seals: Comply with Manufacturer's instructions and recommendations unless indicated otherwise by approved hardware schedule or Architect's instructions.

3.3 HARDWARE SETS (Next page)

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 METAL FRAMING AND SUPPORTS

A. Steel Framing Members, General: ASTM C 754.

1. Steel Sheet Components: ASTM C 645. Thickness specified is minimum uncoated base-metal thickness.
2. Protective Coating: ASTM A 653/A 653M, G60, hot-dip galvanized

2.2 ACCESSORIES

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install steel framing to comply with ASTM C 754."
1. Portland Cement Plaster Assemblies: Also comply with ASTM C 1063.
2. Gypsum Board Assemblies: Also comply with ASTM C 840.

B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

C. Isolate steel framing from building structure, except at floor, to prevent transfer of loading imposed by structural movement.

1. Where studs are installed directly against exterior walls, install isolation strip between studs and wall.

D. Fire-Resistance-Rated Assemblies: Comply with requirements of listed assemblies.

END OF SECTION 092216

SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

B. Obtain tile of each type and color or finish from same production run for each contiguous area.

PART 2 - PRODUCTS

2.1 CERAMIC TILE

A. Ceramic Tile Type: Glazed porcelain tile, that complies with ANSI A137.1.
   1. Face Size: Per Finish Schedule in Project Drawings.
   2. Face: Plain with cushion edges.
   3. Tile Color, Glaze, and Pattern: As selected by Architect from manufacturer's full range.
   4. Grout Color: As selected by Architect from manufacturer's full range.

2.2 INSTALLATION MATERIALS

A. Portland Cement Mortar (Thinset) Installation Materials: ANSI A108.02.

B. Grout Type: Standard cement grout, ANSI A118.6.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules.

B. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight, aligned joints. Fit tile closely to electrical outlets, fixtures, and other penetrations so plates, collars, or covers overlap tile.

C. Lay tile in grid pattern unless otherwise indicated. Align joints where adjoining tiles on floor, base, walls, and trim are the same size.

D. Install waterproofing to comply with ANSI A108.13.

E. Interior Floor Tile Installation Method(s): Over Concrete Subfloors: TCNA F111; cement mortar bed with cleavage membrane.

END OF SECTION 093013

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANELS

A. Basis-of-Design Products for Appearance:

1. Armstrong Mesa Second Look 688
2. Armstrong Mesa (24” x 48”)
3. USG Interiors, LLC, “Radar Education”
4. USG Interiors, LLC, “Radar”

B. Classification: As follows, per ASTM E 1264:

1. Pattern: C, CE or E.
2. NRC: Not less than 0.55.
3. CAC: Not less than 35.

C. Color: White.

D. Edge Detail: Square lay in.

E. Thickness: Minimum 7/8 inch.

F. Modular Size: 24” x 48.”

2.2 CEILING SUSPENSION SYSTEM

A. Ceiling Suspension System: 15/16” face, direct-hung system; ASTM C 635, intermediate-duty structural classification.

1. Face Design: Flat, flush.
2. Face Finish: Plated with metallic finish.

B. Attachment Devices: Sized for 5 times the design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated.

C. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

1. Size: Provide yield strength at least 3 times the hanger design load (ASTM C 635, Table 1, Direct Hung), but not less than 0.106-inch-diameter wire.

PART 3 - EXECUTION

3.1 INSTALLATION

1. Install acoustical ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

2. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

3. Arrange directionally patterned acoustical units as indicated on Drawings.

END OF SECTION 095113

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

B. Extra Materials: Deliver to Owner at least 10 linear feet of each type and color.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

A. Thermoset Rubber Base: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).
B. Style: Cove base with toe.
C. Minimum Thickness: 0.125 inch.
D. Height: 6 inches.
E. Lengths: Coils in manufacturer's standard lengths.
F. Outside Corners: Preformed.
G. Inside Corners: Preformed.

2.2 INSTALLATION ACCESSORIES

A. Adhesives: Water-resistant type recommended by manufacturer to suit floor covering and substrate conditions indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Prepare horizontal surfaces according to ASTM F 710. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

B. Adhesively install resilient wall base and accessories in maximum lengths possible. Apply to walls, columns, pilasters, casework, and other permanent fixtures in rooms or areas where base is required.

C. Install reducer strips at edges of floor coverings that would otherwise be exposed.

END OF SECTION 096513

SECTION 096519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

B. Extra Materials: Deliver to Owner one box of each type and color of resilient floor tile installed.

PART 2 - PRODUCTS

2.1 LUXURY VINYL TILE

A. Tile Standard: ASTM F 1700; Class III, printed film vinyl tile; Type B, embossed surface, protected by a UV-cured polyurethane finish.

B. Thickness: 0.125 inch.

C. Pattern: Selected from Manufacturer's Standard selections simulating wood floor patterns.

1. Reference pattern: Armstrong Natural Creations ArborArt Luxury Solid Vinyl Tile.
2. Wear layer thickness: Minimum 0.020 in.

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement- or blended-hydraulic-cement-based formulation provided or approved by flooring manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit floor covering and substrate conditions indicated.

C. Low-Emitting Materials: Adhesives shall have a VOC content of 60 g/L or less.

D. Floor Polish: Protective liquid floor polish products as recommended by manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Prepare concrete substrates according to ASTM F 710. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

B. Lay out tiles so tile widths at opposite edges of room are equal and are at least one-half of a tile.

C. Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged. Lay tiles with grain running parallel with the long side of the room, unless indicated otherwise.

END OF SECTION 096519

SECTION 096723 - RESINOUS FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes resinous (epoxy-based) flooring and 6” cove base.

1.2 SUBMITTALS

A. Product Data: For each type of product.
B. Samples: For each resinous floor system required and for each color and texture specified.
C. Material certificates.
D. Material test reports.
E. Maintenance data.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

C. Pre-installation Conference: Conduct conference at Project site before work and mockups begin.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

B. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application unless manufacturer recommends a longer period.

PART 2 - PRODUCTS

2.1 HIGH-PERFORMANCE RESINOUS FLOORING

A. Substitutions must be submitted in writing to Architect for approval 7 days prior to bid date.

B. Resinous Flooring: Abrasion-, impact- and chemical-resistant, high-performance, resin-based, monolithic floor surfacing designed to produce a seamless floor.

1. Color and Pattern: As indicated from manufacturers listed above.
2. Wearing Surface: Textured for slip resistance.

C. Basis of Design Product: Resuflor Aqua TX.

1. 1st Coat: Primer Armorseal 8100 WB Epoxy applied at 200-250 sq. ft./gal
2. 2nd Coat: Topcoat Armorseal 8100 WB Epoxy applied at 200-250 sq. ft./gal
3. Slip Resistant Additive: Add 8-12 lbs. of 5240
4. Total system thickness: 5-10 mils as required.

PART 3 - EXECUTION

3.1 PREPARATION

A. Inspection: Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions upon which Work is in any way dependent for perfect results. Report all conditions which affect Work. No "waiver of responsibility" for incomplete, inadequate, or defective underlaying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins. Commencement of Work constitutes acceptance of surfaces.

B. Surface Preparation: Remove all surface contamination, loose or weakly adherent particles, laitance, grease, oil, curing compounds, paint, dust and debris by blast track method or approved mechanical means (acid etch not allowed). If surface is questionable, try a test patch. Create a minimum surface profile for the system specified in accordance with the methods described in ICRI No. 03732 to achieve profile CSP 1-3 as follows:

1.	Thin film, to 10 mils	CSP-1 to CSP-3
2.	Thin and medium films, 10 to 40 mils	CSP-3 to CSP-5
3.	Self-leveling mortars, to 3/16”	CSP-4 to CSP-6
4.	Mortars and laminates, to 1/4” or more	CSP-5 to CSP-10

C. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.

D. Moisture Testing: Perform tests indicated below.

1. Calcium Chloride Test: Perform anhydrous calcium chloride test per ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours. Perform tests so that each test area does not exceed 1000 sq. ft. and perform 3 tests for the first 1000 sq. ft. and one additional test for every additional 1000 sq ft.
2. In-Situ Probe Test: Perform relative-humidity test using in-situ probes per ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative-humidity-level measurement.

3.2 ENVIRONMENTAL CONDITIONS

A. All applicators and all other personnel in the area of the RF installation shall take all required and necessary safety precautions. All manufacturers' installation instructions shall be implicitly instructions shall be implicitly followed.
B. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
C. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
D. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
E. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
F. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.3 APPLICATIONS

A. Install resinous floor over properly prepared concrete surface in strict accordance with the manufacturer's directions.

1. Install the primer and/or base coats over thoroughly cleaned and prepared concrete.
2. Install topcoat over flooring after excess aggregate has been removed.
3. Maintain a slab temperature of 60°F to 80°F for 24 hours minimum before applying floor topping, or as instructed by manufacturer.

B. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.

1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
3. At substrate isolation joints, comply with resinous flooring manufacturer's written instructions.

C. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

D. Slip Resistant Finish: Provide grit for slip resistance.

E. Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.4 COMPLETED WORK

A. Cleaning: Upon completion of the Work, clean up and remove from the premises surplus materials, tools, appliances, empty cans, cartons and rubbish resulting from the Work. Clean off all spattering and drippings, and all resulting stains.
B. Protection: Protect Work in accordance with manufacturer's directions from damage and wear during the remainder of the construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.
C. Contractor shall insure that coating is protected from any traffic until it is fully cured.

END OF SECTION 096723

SECTION 099000 - PAINTING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Extra Materials: Deliver to Owner 1 quart of each color and type of finish-coat paint used on Project, in containers, properly labeled and sealed.

B. Related Sections: Section 033511 – Concrete Floor Finishes

PART 2 - PRODUCTS

2.1 PAINT

A. Acceptable Manfuacturers (or pre-approved equal)
   1. Sherwin Williams
   2. Benjamin Moore
   3. Devoe
   4. Glidden
   5. PPG/Pittsburgh Paints

B. MPI Standards: Provide materials that comply with MPI standards indicated and listed in its "MPI Approved Products List."

C. Material Compatibility: Provide materials that are compatible with one another and with substrates.

   1. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

D. Colors: Selected by Architect from Manufacturer’s standard selection.

PART 3 - EXECUTION

3.1 PREPARATION

A. Comply with recommendations in MPI's "MPI Architectural Painting Specification Manual."

B. Remove hardware, lighting fixtures, and similar items that are not to be painted. Mask items that cannot be removed. Reinstall items in each area after painting is complete.

C. Clean and prepare surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

3.2 APPLICATION

A. Comply with recommendations in MPI's "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Paint exposed surfaces unless otherwise indicated.

1. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces.
2. Paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint the back side of access panels.
4. Color-code mechanical piping in accessible ceiling spaces.
5. Do not paint prefinished items, items with an integral finish, operating parts, and labels unless otherwise indicated.

C. Apply paints according to manufacturer's written instructions.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

3.3 PAINT APPLICATION SCHEDULE

A. Concrete Masonry Units - Labs:

1. Block Filler Or-Equal Product: Sherwin Williams Loxon Concrete & Masonry Primer
2. Sherwin Williams Macropoxy 646 Catalyzed Epoxy.

B. Concrete Masonry Units – Other Rooms.

1. Sherwin Williams Precatalyzed
2. Sherwin Williams Promar 200

C. Steel applications: Exterior Semigloss, Alkyd Enamel: Two coats over quick-drying alkyd primer: MPI INT 5.1E.

D. Galvanized Metal: Exterior Mildew-resistant Semigloss Latex. Two coats over waterborne galvanized-metal primer: MPI INT 5.3J.

E. Aluminum: Exterior Mildew-Resistant Flat Semigloss, Alkyd Enamel. Two coats over quick-drying primer for aluminum: MPI INT 5.4J.

END OF SECTION 099000

SECTION 101400 - SIGNAGE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Work included: Provide identifying signage described herein and as needed for a complete installation.

1. Interior room signage

2. ADA/ADAAG required signage

PART 2 - PRODUCTS

2.1 SIGNS, GENERAL

A. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC A117.1

2.2 PANEL SIGNS

A. Acceptable Manufactures (or Equal)

1. ASI Sign Systems, Inc.
2. Hoffco Inc.
3. Best Manufacturers

B. Interior Panel Signs: Engraved plastic laminate with square-cut beveled edges and rounded corners.

1. Finishes and Colors: As selected from manufacturer's full range.
2. Tactile Characters: Characters and Grade 2 Braille raised 1/32 inch above surface with contrasting colors.
3. Provide signs for all rooms mounted on the room door
4. Include international wheelchair symbol at exits labeled “HC” on Life Safety Plan.

2.3 MATERIALS

A. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).

B. Plastic Laminate: High-pressure laminate engraving stock with face and core in contrasting colors.

C. Applied Vinyl: Die-cut characters from vinyl film of nominal thickness of 3 mils with pressure-sensitive adhesive backing, suitable for exterior applications.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate signs in accordance with ADAAG requirements on door at 5’-0” from center of sign to finish floor. Install signs level, plumb, and at heights indicated, with sign surfaces free from distortion and other defects in appearance.

B. Dimensional Characters: Mount characters with backs in contact with surface.

END OF SECTION 101400

SECTION 102113.13 - METAL TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes Painted steel toilet compartments configured as toilet enclosures and urinal screens.

1.2 SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, sections, and attachment details.

C. Samples for each type of toilet compartment material indicated.

D. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.

2.2 PAINTED STEEL TOILET COMPARTMENTS

A. Toilet-Enclosure Style: Floor anchored.

B. Urinal-Screen Style: Floor anchored.

C. Door, Panel, and Pilaster Construction: Seamless, metal facing sheets pressure laminated to core material; with continuous, interlocking molding strip or lapped-and-formed edge closures; corners secured by welding or clips and exposed welds ground smooth. Exposed surfaces shall be free of pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections.

1. Core Material: Manufacturer's standard sound-deadening honeycomb of resin-impregnated kraft paper in thickness required to provide finished thickness of 1 inch for doors and panels and 1-1/4 inches for pilasters.
2. Tapping Reinforcement: Provide concealed reinforcement for tapping (threading) at locations where machine screws are used for attaching items to units.

D. Urinal-Screen Construction:

1. Flat-Panel Urinal Screen: Matching panel construction.

E. Facing Sheets and Closures: hot-dip galvanized-steel sheet with nominal base-metal (uncoated) thicknesses as follows:

1. Pilasters, Braced at Both Ends: Manufacturer's standard thickness, but not less than 0.036 inch.
2. Panels: Manufacturer's standard thickness, but not less than 0.030 inch.
3. Doors: Manufacturer's standard thickness, but not less than 0.030 inch.
4. Flat-Panel Urinal Screens: Thickness matching the panels.

F. Pilaster Shoes: Stainless steel sheet, not less than 0.031-inch nominal thickness and 3 inches high, finished to match hardware.

G. Brackets (Fittings): Stirrup Type: Ear or U-brackets; stainless steel.

H. Steel Sheet Finish: Manufacturer's standard baked-on finish.

1. Color:[As selected by Architect from manufacturer's full range.

a. Allow for application of one color in each room.

2.3 HARDWARE AND ACCESSORIES

A. Hardware and Accessories: Manufacturer's standard operating hardware and accessories.

1. Material: Stainless steel.
2. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.

B. Hardware and Accessories: Manufacturer's heavy-duty stainless steel operating hardware and accessories.

1. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.

C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized steel, or other rust-resistant, protective-coated steel compatible with related materials.

2.4 FABRICATION

A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories, and solid blocking within panel where required for attachment of toilet accessories.

B. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.

C. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment at bottoms of posts. Provide shoes at posts to conceal anchorage.

D. Door Size and Swings: Unless otherwise indicated, provide 24-inch-wide, in-swinging doors for standard toilet compartments and 36-inch-wide, out-swinging doors with a minimum 32-inch-wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position indicated with manufacturer's recommended anchoring devices.

1. Maximum Clearances:

   a. Pilasters and Panels: 1/2 inch.
   b. Panels and Walls: 1 inch .

2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than two brackets attached near top and bottom of panel.

   a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
   b. Align brackets at pilasters with brackets at walls.

3.2 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 102113.13

SECTION 102600 - WALL AND DOOR PROTECTION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Samples.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Adhesive: Recommended by manufacturer for use with material and substrate indicated.

2.2 WALL AND DOOR PROTECTION

A. Door Protection Plates: 8 inches high by door width, with allowance for frame stops. Fabricated from stainless steel.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install components level, plumb, and true to line without distortions.

B. Hand Rails: Where splices occur in horizontal runs of more than 20 feet, offset splices of aluminum retainers and plastic covers.

C. Apply impact-resistant wall covering with full spread of adhesive unless otherwise recommended by manufacturer. Install full height with seams vertical.

END OF SECTION 102600

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 TOILET AND BATH ACCESSORIES

A. Toilet Tissue Dispenser “TTD”:

1. Basis-of-Design Product: Bobrick 2740 or Gamco TTD-2
2. Mounting: Surface mounted with concealed anchorage
3. Material: Satin-finish aluminum bracket with plastic spindle

B. Paper Towel Dispenser “PTD”:

1. Basis-of-Design Product: Bobrick 262 or Gamco TD-2
2. Mounting: Surface
3. Minimum Capacity: 400 single-fold towels, 8-inch-wide.
4. Material: Stainless steel, No. 4 finish (satin).
5. Lockset: Tumbler type.
6. Refill Indicators: Pierced slots at sides or front.

C. Liquid-Soap Dispenser “SD1”:

1. Basis-of-Design Product: Bobrick B-2112 or Gamco G-58 AP.
2. Mounting: Surface.
3. Capacity: 40 oz.
4. Materials: Stainless steel, satin finish.
5. Stainless-Steel Soap Valve.
6. Lockset: Tumbler type.
7. Refill Indicator: Window type.

D. Liquid-Soap Dispenser “SD2”:

1. Basis-of-Design Product: Bobrick B-40.
2. Mounting: Surface.
3. Capacity: 40 oz.
4. Materials: Plastic extrusion, suitable for wet zones

E. Grab Bars GB1, GB2, GB3, GB4 and G5:

1. Basis-of-Design Product: Bobrick B-5806x36/42/18/24/32 or Gamco 150Sx36/42/18/24/32
2. Material: Stainless steel, 0.050 inch thick.
3. Mounting: Concealed .
4. Gripping Surfaces: Peened grip, slip-resistant texture.
5. Outside Diameter: 1-1/4 inches for medium.

F. Mirror Unit MIR1:

1. Basis-of-Design Product: Bobrick B-165 24x36 or Gamco C-Series
2. Frame: Stainless-steel channel

G. Shower Curtain Rod SCR1:

1. Basis-of-Design Product: Gamco SR125
2. Outside Diameter: 1-1/4 inches.
3. Mounting: Flanges with concealed fasteners.
4. Material and Finish: No. 4 finish (satin)] .

H. Robe Hook RH1:

1. Basis-of-Design Product: Bobrick 7727 or Gamco 7672
2. Description: Double robe unit.
3. Material and Finish: Stainless steel, No. 4 finish satin.

I. Shower Seat SEAT1:

1. Basis-of-Design Product: Dreamline Natural Teak Wood Folding Shower Seat

2.2 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, No. 4 finish (satin), 0.031-inch minimum nominal thickness unless otherwise indicated.

B. Brass: ASTM B 19, ASTM B 16/B 16M, or ASTM B 30.

C. Sheet Steel: ASTM A 1008/A 1008M, 0.036-inch minimum nominal thickness.

D. Galvanized-Steel Sheet: ASTM A 653/A 653M, G60.

E. Chromium Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

F. Baked-Enamel Finish: Factory-applied, gloss-white, baked-acrylic-enamel coating.

G. Mirrors: ASTM C 1503, mirror glazing quality, clear-glass mirrors, nominal 6.0 mm thick.

H. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.

I. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.

J. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

1. Install grab bars to withstand a downward load of at least 250 lbf, when tested according to method in ASTM F 446.

B. Adjust accessories for unencumbered, smooth operation, and verify that mechanisms function properly. Replace damaged or defective items. Remove temporary labels and protective coatings.

END OF SECTION 102800

SECTION 104400 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 FIRE-PROTECTION REPLACEMENT CABINETS

A. Existing Conditions: Verify existing opening size in concrete masonry wall prior to ordering cabinets.

B. Fire-Protection Cabinets: Enameled-steel, semi-recessed cabinets for fire extinguisher. Fire-resistance ratings are applicable only to recessed and semirecessed cabinets.

C. Cabinet Construction: Nonrated, steel sheet.

1. Trim Style: Flat trim.
2. Trim Material: Steel.

D. Door Material: Steel.

1. Door Style: Fully glazed with frame.
2. Door Glazing: Tempered float glass.

E. Accessories: Identification lettering.

F. Finishes: Manufacturer's standard baked-enamel or powder coat.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install cabinets at existing locations within concrete masonry walls.

B. Identification: Apply **decals** or **vinyl lettering** to cabinets at locations indicated.

C. Reuse existing fire extinguishers. Owner will supply fire extinguishers that need replacing

END OF SECTION 104400

SECTION 104413 - FIRE PROTECTION CABINETS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes Fire-protection cabinets for portable fire extinguishers.

1.2 SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each type of exposed finish required.

C. Maintenance data.

1.3 COORDINATION

A. Coordinate sizes and locations of fire-protection cabinets with wall depths.

PART 2 - PRODUCTS

A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E814 for fire-resistance rating of walls where they are installed.

2.2 FIRE-PROTECTION CABINET <Insert drawing designation>

A. Cabinet Construction: Nonrated.

B. Cabinet Material: Cold-rolled steel sheet.

C. Semirecessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface, with exposed trim face and wall return at outer edge (backbend).

1. Square-Edge Trim: 1-1/4- to 1-1/2-inch backbend depth.
2. Rolled-Edge Trim: 2-1/2-inch backbend depth.

D. Cabinet Trim Material: Same material and finish as door.

E. Door Material: Steel sheet.

F. Door Style: Center glass panel with frame.
1. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location.

a. Identify fire extinguisher in fire-protection cabinet with the words "FIRE EXTINGUISHER

1) Location: Applied to cabinet glazing.
2) Application Process: Decals.
3) Lettering Color: Red.
4) Orientation: Vertical.

2. Alarm: Manufacturer's standard alarm that actuates when fire-protection cabinet door is opened and that is powered by batteries.

G. Materials:

1. Cold-Rolled Steel: ASTM A1008/A1008M, Commercial Steel (CS), Type B.

a. Finish: Baked enamel, TGIC polyester powder coat, HAA polyester powder coat, epoxy powder coat, or polyester/epoxy hybrid powder coat, complying with AAMA 2603.
b. Color: As selected by Architect from manufacturer's full range.

2. Tempered Float Glass: ASTM C1048, Kind FT, Condition A, Type I, Quality q3, 3 mm thick, Class 1 (clear).
3. Break Glass: Clear annealed float glass, ASTM C1036, Type I, Class 1, Quality q3, 1.5 mm thick, single strength.

2.3 FABRICATION

A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Prepare recesses for semirecessed fire-protection cabinets as required by type and size of cabinet and trim style.

END OF SECTION 104413

SECTION 123216 - MANUFACTURED PLASTIC-LAMINATE-CLAD CASEWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plastic-laminate-clad casework, including vanities.
2. Casework hardware and accessories.

1.2 SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For plastic-laminate-clad casework.

C. Samples: For casework and hardware finishes.

D. Sample warranty.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.4 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of casework that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR CASEWORK

A. Grade: Custom, per AWI/AWMAC/WI's "Architectural Woodwork Standards" for grades of casework indicated for construction, finishes, installation, and other requirements.

2.2 PLASTIC-LAMINATED-FACED CABINETS

A. Design: Flush overlay.

B. Materials:

1. Plastic-Laminate Grade: HGS, with colors and Patterns as selected by Architect from manufacturer's full range.

2. Edgebanding: PVC, with color as selected by Architect from casework manufacturer's full range.

C. Concealed Materials:

1. Plywood: Hardwood plywood.
2. Plastic Laminate: Grade BKL.
3. Particleboard.

2.3 MATERIALS

A. Maximum Moisture Content for Lumber: 7 percent for hardwood and 12 percent for softwood.

B. Hardwood Plywood: HPVA HP-1, particleboard core except where veneer core is indicated.

C. Particleboard: ANSI A208.1, Grade M-2.

D. Thermally Fused Laminate (TFL) Panels: Particleboard or MDF finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.

1. Edgebanding for Thermally Fused Laminate (TFL) Panels: PVC or polyester edgebanding matching thermally fused laminate panels.

2.4 CASEWORK HARDWARE AND ACCESSORIES

A. Hardware, General: Unless otherwise indicated, provide manufacturer's standard satin-finish, commercial-quality, heavy-duty hardware.

1. Use threaded metal or plastic inserts with machine screws for fastening to particleboard except where hardware is through-bolted from back side.

B. Butt Hinges: Stainless steel, semiconcealed, five-knuckle hinges complying with ANSI/BHMA A156.9, Grade 1, with antifriction bearings and rounded tips.

C. Semirecessed Pulls: Plastic. For sliding doors, provide recessed plastic flush-pulls.

D. Door Catches: Nylon-roller spring catch or dual, self-aligning, permanent magnet catch.

E. Door and Drawer Bumpers: Self-adhering, clear silicone rubber.

F. Drawer Slides: Manufacturer's standard; complying with ANSI/BHMA A156.9.

G. Adjustable Shelf Supports: Pin-type, two-pin-locking plastic shelf rests complying with ANSI/BHMA A156.9, Type B04013.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install casework level, plumb, and true in line; shim as required using concealed shims. Where casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.

B. Base Cabinets: Set cabinets straight, level, and plumb. Adjust subtops within 1/16 inch of a single plane. Align similar adjoining doors and drawers to a tolerance of 1/16 inch. Bolt adjacent cabinets together with joints flush, tight, and uniform.

C. Wall Cabinets: Hang cabinets straight, level, and plumb. Adjust fronts and bottoms within 1/16 inch of a single plane. Fasten cabinets to hanging strips, masonry, framing, wood blocking, or reinforcements in walls and partitions. Align similar adjoining doors to a tolerance of 1/16 inch.

D. Fasten casework to adjacent units and to masonry, framing, wood blocking, or reinforcements in walls and partitions to comply with the AWI/AWMAC/WI's "Architectural Woodwork Standards."

E. Install hardware uniformly and precisely. Set hinges snug and flat in mortises unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.

F. Adjust operating hardware so doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

G. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.

3.2 FIELD QUALITY CONTROL

A. Inspections: Provide inspection of installed Work through AWI's Quality Certification Program certifying that woodwork, including installation, complies with requirements of the Architectural Woodwork Standards for the specified grade.

1. Inspection entity shall prepare and submit report of inspection.

END OF SECTION 123216

SECTION 123623.13 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes plastic-laminate-clad countertops.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For plastic-laminate-clad countertops.

C. Samples: Plastic laminates in each type, color, pattern, and surface finish required.

1.3 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1.4 FIELD CONDITIONS

A. Environmental Limitations without Humidity Control: Do not deliver or install wood countertops until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-CLAD COUNTERTOPS

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of plastic-laminate-clad countertops indicated for construction, finishes, installation, and other requirements.

B. Grade: Custom.

C. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGS.

D. Colors, Patterns, and Finishes: As selected by Architect from manufacturer's full range in the following categories:

E. Edge Treatment: 2.0-mm PVC edging.

F. Core Material: Particleboard or Exterior-grade plywood as selected by fabricator to comply with quality standard.

G. Core Thickness: 3/4 inch.

H. Paper Backing: Provide paper backing on underside of countertop substrate.

2.2 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard unless otherwise indicated.

B. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of countertop and quality grade specified unless otherwise indicated.
1. MDF: Medium-density fiberboard, ANSI A208.2, Grade 130.
2. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
3. Softwood Plywood: DOC PS 1.

2.3 MISCELLANEOUS MATERIALS

A. Adhesive for Bonding Plastic Laminate: As selected by fabricator to comply with requirements.

2.4 FABRICATION

A. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch over base cabinets. Ease edges to radius indicated for the following:

1. Solid-Wood (Lumber) Members: 1/16 inch unless otherwise indicated.

B. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.

1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately; use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

B. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.

1. Secure field joints in countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten in accordance with manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.

C. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

D. Countertop Installation: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

1. Install countertops level and true in line. Use concealed shims as required to maintain not more than a 1/8-inch-in-96-inches variation from a straight, level plane.
2. Secure backsplashes to walls with adhesive.
3. Seal joints between countertop and backsplash, if any, and joints where countertop and backsplash abut walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

E. Protection: Provide Kraft paper or other suitable covering over countertop surfaces, taped to underside of countertop at a minimum of 48 inches o.c. Remove protection at Substantial Completion.

END OF SECTION 123623.13

SECTION 283100 - FIRE DETECTION AND ALARM SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section includes general guidelines for the furnishing, installation, and connection of the fire alarm equipment.

1.2 SCOPE

A. A fully addressable fire alarm system shall be designed and installed in accordance with the specifications and drawings. Device location and wiring runs shall be in accordance with NFPA 72 and the engineer's design drawings.

B. Fire alarm signals: Building shall have a general evacuation fire alarm signal in accordance with ASA S3.41 to notify all occupants in the respective building to evacuate.

C. The main fire alarm control unit shall automatically transmit alarm signals to a listed central station using a digital alarm communicator transmitter in accordance with NFPA 72.

D. All existing fire alarm equipment, wiring, devices and sub-systems that are not shown to be reused shall be removed. All existing fire alarm conduit not reused shall be removed.

C. Existing fire alarm bells, chimes, door holders, 120VAC duct smoke detectors, valve tamper switches and waterflow/pressure switches may be reused provided the equipment:

1. Meets this specification section;
2. Is UL listed or FM approved;
3. Is compatible with new equipment being installed;
4. Is verified as operable through contractor testing and inspection;
5. Is warranted as new by the contractor.

D. Existing 120 VAC duct smoke detectors, waterflow/pressure switches, and valve tamper switches reused by the Contractor shall be equipped with an addressable interface device compatible with the new equipment being installed.

1.4 RELATED SECTIONS

A. Section 12100 "Allowances."

1.5 SUBMITTALS

A. Shop Drawings: Prepare drawings and include all contractors information. The contractor shall be responsible for verifying all critical dimensions shown on the drawings provided by VA.

B. Manuals: Companion copies of complete maintenance and operating manuals including technical data sheets for all items used in the system, power requirements, device wiring diagrams, dimensions, and information for ordering replacement parts.

C. Certifications: Submit Installer's fire alarm certification that the proposed performer of contract maintenance is an authorized representative of the major equipment manufacturer. Include names and addresses of the proposed supervisor of installation and the proposed performer of contract maintenance. Also include the name and title of the manufacturer's representative who makes the certification.

1.6 WARRANTY

All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of one year from the date of acceptance of the entire installation by the Contracting Officer.

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS, GENERAL

A. All equipment shall be tested and listed by Underwriters Laboratories, Inc. or Factory Mutual Research Corporation for use as part of a fire alarm system. The authorized representative of the manufacturer of the major equipment shall certify that the installation complies with all manufacturers' requirements and that satisfactory total system operation has been achieved.

B. Conduit shall be in accordance with NFPA 70.

C. Wire: Wiring shall be in accordance with NEC article 760, and as recommended by the manufacturer of the fire alarm system.

2.2 FIRE ALARM CONTROL UNIT

A. General:
   1. Each building shall be provided with a fire alarm control unit and shall operate as a supervised zoned fire alarm system.
   2. Each power source shall be supervised from the other source for loss of power.
   3. All circuits shall be monitored for integrity.
   4. Visually and audibly annunciate any trouble condition including, but not limited to main power failure, grounds and system wiring derangement.
   5. Transmit digital alarm information to the main fire alarm control unit.

B. Enclosure: The control unit shall be housed in a cabinet suitable for both recessed and surface mounting. Cabinet and front shall be corrosion protected, given a rust-resistant prime coat, and manufacturer's standard finish.

C. Remote Control Capability: Each building fire alarm control unit shall be installed and programmed so that each must be reset locally after an alarm, before the main fire alarm control unit can be reset. After the local building fire alarm control unit has been reset, then the all system acknowledge, reset, silence or disabling functions can be operated by the main fire alarm control unit

2.4 STANDBY POWER SUPPLY

A. Uninterrupted Power Supply (UPS):

1. The UPS system shall be comprised of a static inverter, a precision battery float charger, and sealed maintenance free batteries.
2. UPS system shall be sized to operate the central processor, CRT, printer, and all other directly connected equipment for 5 minutes upon a normal AC power failure.

B. Batteries: Battery shall have sufficient capacity to power the fire alarm system for not less than 24 hours plus 5 minutes of alarm to an end voltage of 1.14 volts per cell, upon a normal AC power failure.

C. Battery Charger: Rated for fully charging a completely discharged battery within 48 hours while simultaneously supplying any loads connected to the battery.

2.5 UTILITY LOCKS AND KEYS:

A. All key operated test switches, control units, annunciator panels and lockable cabinets shall be provided with a single standardized utility lock and key.

2.6 ALARM INITIATING DEVICES

A. Manual Fire Alarm Stations: single action pull down type with suitable operating instructions provided on front in raised or depressed letters, and clearly labeled "FIRE".

B. Smoke Detectors: Photoelectric type and UL listed for use with the fire alarm control unit being furnished.

PART 3 – EXECUTION

3.1 INSTALLATION:

A. Installation shall be in accordance with NFPA 70, 72, 90A, and 101 as shown on the drawings, and as recommended by the major equipment manufacturer.
B. Fire alarm wiring shall be installed in conduit.
B. All conduits, junction boxes, conduit supports and hangers shall be concealed in finished areas and may be exposed in unfinished areas.
C. All new and reused exposed conduits shall be painted in accordance with Section 09 91 00, PAINTING to match surrounding finished areas and red in unfinished areas.
D. All existing accessible fire alarm conduit not reused shall be removed.
E. Existing devices that are reused shall be properly mounted and installed. Where devices are installed on existing shallow backboxes, extension rings of the same material, color and texture of the new fire alarm devices shall be used.
F. All fire detection and alarm system devices, control units and remote annunciators shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas. Exact locations are to be approved by the COTR.
G. Speakers shall be ceiling mounted and fully recessed in areas with suspended ceilings. Speakers shall be wall mounted and recessed in finished areas without suspended ceilings. Speakers may be surface mounted in unfinished areas.

H. Strobes shall be flush wall mounted with the bottom of the unit located 80 inches above the floor or 6 inches below ceiling, whichever is lower. Locate and mount to maintain a minimum 36 inches (900 mm) clearance from side obstructions.
I. Manual pull stations shall be installed not less than 42 inches or more than 48 inches from finished floor to bottom of device and within 60 inches of an exit door.

3.2 TYPICAL OPERATION

A. Activation of any manual pull station or smoke detector shall cause the following operations to occur:

B. Operation of duct smoke detectors shall cause a system supervisory condition and shut down the ventilation system and close the associated smoke dampers as appropriate.

C. Alarm verification shall not be used for smoke detectors installed for the purpose of early warning.

3.3 FINAL INSPECTION AND ACCEPTANCE

A. Prior to final acceptance a minimum 30 day "burn-in" period shall be provided. The purpose shall be to allow equipment to stabilize and potential installation and software problems and equipment malfunctions to be identified and corrected. During this diagnostic period, all system operations and malfunctions shall be recorded. Final acceptance will be made upon successful completion of the "burn-in" period and where the last 14 days is without a system or equipment malfunction.

B. At the final inspection a factory trained representative of the manufacturer of the major equipment shall repeat the tests in Article 3.3 TESTS and those required by NFPA 72. In addition the representative shall demonstrate that the systems function properly in every respect. The demonstration shall be made in the presence of a VA representative.

3.4 INSTRUCTION

A. The manufacturer's authorized representative shall provide instruction and training to the designated University personnel.

B. The Contractor and/or the Systems Manufacturer's representative shall provide a typewritten "Sequence of Operation" including a trouble shooting guide of the entire system for submittal to the VA.

END OF SECTION 283100

SECTION 15000- 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 ass 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 as least two projects of comparable size and scope.

3. The contractor shall be located within 60 miles driving distance of the project.

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 16 shall provide power services for motors and equipment furnished by this Contractor to include safety disconnect switches, starters and final connections.

B. Division 15 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 16 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 15 shall conform to the requirements of Division 16.

1.10 SUBSTITUTIONS

A. 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 one week 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 Architect/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 two paper copies and one copy on a reproducible medium such as mylar. 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 Architect/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 Architect/Engineer's review of submittals, unless Architect/Engineer gives written acceptance of specific deviations.

15. Notify Architect/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 Architect/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 Architect/Engineer due to non-compliance with the Contract Documents and/or incompleteness shall be thoroughly reviewed by the Contractor prior to delivery to the Architect/Engineer for review. The Contractor shall ensure the completeness and compliance of the submittal materials and shall reimburse the Architect/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 Architect/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 Architect/ 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. Upon completion of the work this data shall be recorded to scale, by a competent draftsman on sepia line prints or transparent paper of the contract drawings. Sepia will be furnished to the Contractor by the Architect/Engineer, but cost shall be borne by Contractor. Where changes are to be recorded, the sepia line prints shall be erased before the changes are made. Where the work was installed exactly as shown on the contract drawings the sepia line prints shall not be disturbed other than being marked "As-Built". In showing the changes the same legend shall be used to identify piping, etc., as was used on the contract drawings. A separate set of drawings shall be prepared for plumbing, heating, air conditioning, and ventilating work unless two or more divisions are shown on the same sheets of the contract drawings, in which case the various subcontractors shall also show their changes on the same sheets. Each sheet shall bear the date and name of the subcontractor submitting the drawings.

3. The Contractor shall review the completed As-Built drawings and ascertain that all data furnished on the sepia drawings are accurate and truly represent the work as actually installed. Where plumbing, hot or chilled water pipes, inverts etc., are involved as part of the work, the Contractor shall furnish true elevations and locations, all properly referenced by using the original bench mark used for the institution or for this project. The sepia line prints including those unchanged and changed shall be submitted to the Architect/Engineer.

4. The Contractor shall submit as-built drawings to the Architect/Engineer for review.

5. The Engineer shall authorize the Contractor to produce and distribute the as-built drawings as follows:

a. One (1) blue line to the Engineer.

b. One (1) blue line to the Architect.

c. One (1) sepia 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 Architect/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. Architect/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 ARCHITECT/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.

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.

1.21 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 form 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 nor 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-load bearing or non-fire rated walls and partitions shall be galvanized sheet steel with lock seam joints of minimum gauges as follows: for pipes 2-1/2" size and smaller - 24 gauge; 3" to 6" - 22 gauge.

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 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.

D. 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.

E. 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 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 acceptance of systems. 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.

- END OF SECTION -

SECTION 15010- MECHANICAL DEMOLITION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Remove: Equipment, piping, insulation, controls, ductwork, etc. as indicated on the drawings.

1.02 EXISTING CONDITIONS

A. Contractor shall visit site prior to bidding; the contractor shall become familiar with the requirements and intent of the drawings.

B. There will be no allowances made for failure of the contractor to familiarize themselves with the extent of work required under the specifications or drawings.

1.03 SALVAGED MATERIALS OR EQUIPMENT

A. Equipment and materials shall be removed from the jobsite at no additional expense to the owner.

B. All equipment indicated on the drawings shall be turned over to the owner.

C. Any material posing a hazard shall be removed from the jobsite immediately.

PART 2 - EXECUTION

2.01 GENERAL

A. Contractor shall submit a plan for approval by the Architect for phasing of demolition to minimize utility outages and interference with other trades and occupied portions of the building.

B. Contractor shall coordinate utility outages with the General Contractor, Owner and Architect by providing three days notice of times and locations of utility outages and anticipated time of restoration.

2.02 PROTECTION OF EXISTING TO REMAIN

A. Provide tarps, plywood, and any other protectionary device to protect existing finishes, furniture, appliances, and equipment, etc.

B. Damages to any afore mentioned shall be replaced by this contractor at no cost to the owner.

2.03 PROHIBITED METHODS

A. Jack Hammers shall not be used without the written approval of the Architect. The

Architect reserves the right to withdraw approval for the use of jack hammers at any time if their use create excessive noise and/or vibration as deemed by the Architect.

B. Explosives of any type shall not be used.

C. Burning shall not be used as a means of demolition and/or disposal. Cutting torches shall not be considered as burning.

2.03 DUST CONTROL

A. Provide traps, temporary walls, etc. as required to prevent the spread of dust through the building unnecessarily.

-END OF SECTION-

SECTION 15140- SUPPORTS AND ANCHORS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Pipe, duct, and equipment hangers, supports, and associated anchors.

B. Equipment bases and supports.

C. Sleeves and seals.

D. Flashing and sealing equipment and pipe stacks.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish hanger and support inserts sleeves to Section for placement into formwork.

1.03 SUBMITTALS

A. Submit shop drawings and product data for all items listed under this section.

B. Indicate hanger and support framing and attachment methods.

PART 2 - PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 1/2 to 4 inches: Carbon steel, adjustable, clevis.

B. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods; cast iron roll and stand for hot pipe sizes 6 inches and over.

C. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

D. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp; adjustable steel yoke and cast iron roll for hot pipe sizes 6 inches and over.

E. Vertical Support: Steel riser clamp.

F. Floor Support for Pipe Sizes to 4 Inches and All Cold Pipe Sizes: Cast iron adjustable pipe saddle, locknut nipple, floor flange, and concrete pier or steel support.

G. Un-insulated Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

H. Shield for Insulated Piping 1 1/4 Inches and Smaller: 18 gage galvanized steel saddle over insulation in 180 degree segments, minimum 12 inches long per pipe support.

I. Shield for Insulated Water Piping 1 1/2 Inches and Larger: Rigid non-conducting blocking in 180 degree segments, 12 inch minimum length with block thickness the same as insulation thickness and with an inner contour of the supporting pipe. Install with 18 gage galvanized steel saddle per pipe support.

K. Shields for Vertical Copper Pipe Risers: Sheet lead.

2.02 HANGER RODS

A. Steel Hanger Rods: Galvanized threaded both ends, threaded one end, or continuously threaded.

2.03 FLASHING

A. Metal Flashing: galvanized steel.

B. Lead Flashing: 5 lb/sq ft sheet lead for waterproofing; one lb/sq ft sheet lead for soundproofing.

C. Flexible Flashing: 47 mil thick sheet butyl; compatible with roofing.

D. Caps: Steel, 20 gage minimum; 16 gage at fire resistant elements.

2.04 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: Form with schedule 80 PVC or Schedule 10 steel pipe.

B. Sleeves for Pipes Through Non-fire Rated Walls, Footings, and Potentially Wet Floors: Form with schedule 10 steel pipe.

C. Sleeves through beams shall be Schedule 40 steel; only in locations approved by the Structural Engineer.

D. Sleeves for Round Ductwork: Form with galvanized steel.

E. Flanges shall be 20 gage galvanized steel.

F. Sleeves for floor or wall penetrations at rated assemblies shall conform to Specifications Section 15160.

2.05 FABRICATION

A. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

B. Design hangers without disengagement of supported pipe.

2.06 FINISH

A. Prime coat steel hangers and supports.

PART 3 - EXECUTION

3.01 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as follows:

PIPE SIZE	MAX. HANGER SPACING	HANGER DIAMETER
1/2 to 1-1/4 inch	6'-6"	3/8"
1-1/2 to 2 inch	10'-0"	3/8"
2-1/2 to 3 inch	10'-0"	1/2"
4 to 6 inch	10'-0"	5/8"
PVC (All Sizes)	6'-0"	3/8"
C.I. Bell and Spigot (or No-Hub)	5'-0" and at joints	5/8"

B. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

C. Place a hanger within 12 inches of each horizontal elbow.

D. Use hangers with 1-1/2 inch minimum vertical adjustment.

E. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.

F. Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.

G. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

H. Support riser piping independently of connected horizontal piping.

I. All hangers, hanger rods, supports, etc. shall be double nutted.

3.02 EQUIPMENT BASES AND SUPPORTS

A. Provide equipment bases of concrete type.

B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

C. Construct support of steel members. Brace and fasten with flanges bolted to structure.

D. Provide rigid anchors for pipes after vibration isolation components are installed.

3.03 FLASHING

A. Provide flexible flashing and metal counterflashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

B. Flash vent and soil pipes projecting 3 inches minimum above finished roof surface with lead worked one inch minimum into hub, 8 inches minimum clear on sides with 24 x 24 inches sheet size. For pipes through outside walls, turn flanges back into wall and caulk, metal counterflash and seal.

C. Flash floor drains in floors with topping over finished areas with lead, 10 inches clear on sides with minimum 36 x 36 inch sheet size. Fasten flashing to drain clamp device.

D. Seal floor, and mop sink drains watertight to adjacent materials.

E. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms, installed in accordance with manufacturer's instructions for sound control.

3.04 SLEEVES

A. Extend sleeves through floors one inch above finished floor level. Caulk sleeves full depth and provide floor plate.

B. Install chrome plated steel escutcheons at finished surfaces.

-END OF SECTION-

SECTION 15256- INSULATION FOR CONDENSATE DRAINS

PART 1 - 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. Condensate Drains

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. Submittals and product literature for each insulation type, finish type and equipment served, shall be required. 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.

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.

2.02 INSULATION TYPES

A. Closed cell, flexible elastomeric thermal insulation, black in color, supplied in unslit tubing. Equal to Armaflex AP 2000.

B. Closed cell, elastomeric thermal insulation tape. Commonly supplied in 2" X 1/8" thick. Equal to Armaflex insulation tape.

2.03 ADHESIVES

A. An air drying contact adhesive specifically designed for joining seams and ends of Armaflex AP-2000 in specification section 2.02-A. Comply with Mil Spec. Mil-A-24179A and Amend-2 as type 11, class 1. Equal to Armstrong 520 adhesive.

2.04 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

3.01 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 18 GA, 180 degree, galvanized sheet metal saddles same length as block supports.

E. All insulation of cold surfaces 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 tests to be witnessed by the Architect shall not be insulated until such systems have been tested and approved.

3.02 APPLICATION

A. Condensate drain insulation

1. Insulation shall be butted together and adhered in place with joint adhesive (see Part 2, 2.03, A). All joints and seams shall be sealed with contact adhesive. Where possible insulation shall be slipped on without slitting. Insulation shall be butted firmly to equipment. Short radius elbows shall be mitered, adhesive applied and firmly held together until the adhesive hardens sufficiently to prevent separation.

2. Provide removable sections of insulation at all clean outs.

3. Paint all exposed insulation with Armaflex white paint (see Part 2, 2.04, A).

4. Provide sheet metal saddles for all insulated condensate piping at pipe supports.

3.02 INSULATION THICKNESS

A. Provide 1/2" thick insulation materials for all condensate piping.

3.03 MISCELLANEOUS

A. This contractor will contact the engineer at the start of all phases of work, as follows:

1. During installation of any concealed insulation.

2. During installation of above ceiling insulation work.

B. The engineer will ascertain the continuation of work subject to the requirements aforementioned.

-END OF SECTION-

SECTION 15258- DUCTWORK INSULATION

PART 1 - 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. Supply, Return, Outside, and Relief Air ductwork concealed.

2. Supply, Return, Outside, and Relief Air ductwork exposed.

3. Supply, Return, Outside, and Relief Air ductwork concealed outside of building insulation envelope attic/crawlspace).

4. Exhaust Air ductwork concealed.

5. Exhaust Air ductwork exposed.

6. Lined ductwork.

7. Exterior exposed ductwork.

B. Not all of the insulation types specified herein may be required on this project. The contractor is only to provide those insulation types required for the applications on this project.

C. 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. Submittals and product literature for each insulation type, finish type, and equipment served. Provide submittals on method of installation for each type of insulation used.

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. Insulation Types:

1. FIBERGLASS BLANKET

Made of flame - attenuated glass fibers, bonded with a thermosetting resin. Reinforced with fiberglass scrim facing laminated to UL rated kraft. FSK facing,

.02 perms, .00035" foil thickness per ASTM E-96, procedure A. 2" thick, 0.75 PCF, 7.1 R value. Equal to Knauf, Ductwrap

2. RIGID FIBERGLASS

3 lb. density, .23 k factor. Inorganic glass fibers bonded by a thermosetting resin with an FSK jacket in compliance with NFPA 90A AND 90B standards. Equal to Manville 814, 3 lb density, 2" thick with FSK jacket.

3. FIBERGLASS BLANKET

Made of flame - attenuated glass fibers, bonded with a thermosetting resin. Reinforced with fiberglass scrim facing laminated to UL rated kraft. FSK facing, .02 perms, .00035" foil thickness per ASTM E-96, procedure A. 3" thick, 3/4 lb., 10.7 R value. Equal to Manville, Microlite.

4. SEMI RIGID FIBERGLASS BOARD

3lb. density, thermal conductivity compliance ASTM C 518, 650 degrees F temperature limit, 1 1/2" thick. High temperature fiberglass bonded to a flexible jacketing. Jacketing is a laminate of white kraft and aluminum foil, reinforced with fiberglass, chemically treated for fire and smoke safety. Equal to Manville Pipe and Tank Insulation.

5. DUCT LINER

Acoustical and thermal insulation manufactured from long textile, type glass fibers firmly bonded together with a thermosetting resin. Air stream surface is coated to protect against air erosion. Up to 250 degrees F (ASTM C 411), NFPA 90A and 90B, ASTM C 1071: not greater than 0.5% moisture by volume at 120 degrees F and 96% RH. Equal to Certainteed 1" thick, type 150, .28 K value for up to 2,500 FPM velocity. Liner not to support mold or mildew growth.

6. DUCT LINER

Same as number 5 except type 300, 1" thick, .24 K factor, up to 6000 FPM.

C. Weather Barrier Mastics

1. An emulsion type material compounded of selected and processed bitumens and mineral fillers. Equal to INSULKOTE ET. and INSULKOTE PRIMER E.

D. Duct Tape

1. FSK, glass fiber impregnated with foil facing, 4"wide, 25/50, ASTM E-84.

E. Adhesives

1. Water based adhesives for attaching low density fibrous insulation and duct liner to metal. Service temperature limits-20 degrees F to 250 degrees F, UL MJAT-2,

ASTM C 916, type 11, NFDA 90A and 90B. Equal to Foster Quick Tack Adhesive 85-60. Adhesive not to support mold or mildew growth.

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. All insulation of cold surfaces shall be vapor sealed. All joints, laps, breaks and faults in vapor barriers of insulation covering cold surfaces shall be thoroughly sealed.

E. Insulation that becomes wet for any reason shall be removed, replaced and resealed at the expense of this Contractor.

3.02 APPLICATION

A. Interior, Concealed Square or Round Ductwork

Use FIBERGLASS BLANKET as per Part 2, 2.01, B-1. For square ducts with any one dimension not greater than 24". Insulation shall be wrapped around ducts and secured with outward clinching staples at 4 inches o.c.. Ducts 24 inches and greater shall have insulation additionally secured with stick clips on 18 inch centers or with 4 inch wide bands of adhesive applied on 18 inch centers. Insulation shall be lapped a minimum of 4" and all seams and penetrations shall be sealed with FSK Duct tape as per Part 2, 2.01, D-1.

B. Rectangular, Interior Supply, Return, Outside Relief and Exhaust Air Ductwork, Exposed.

Use FIBERGLASS BOARD insulation as per Part 2, 2.01, B-2, (except with white ASJ in lieu of FSK) and shall be applied to ducts with mechanical fasteners such as stick cups or weld pins at 12 inch centers. Install fiberglass board in full pieces. Joints and seams shall be covered with 4" tape as per Part 2, 2.01, D-1. Where standing seams or angle supports exceed insulation thickness an additional layer of board will be used.

C. Round, Interior Supply, Return, Outside , Exhaust and Relief Ductwork Exposed.

Round ductwork use SEMI RIGID FIBERGLASS BOARD as per Part 2, 2.01, B-4(except with white ASJ in lieu of FSK). Flexible fiberboard shall be applied to ducts with outward clinching staples. Make any fabrication cuts to accommodate the proper fitting of the insulation before stapling. In addition any square ducts with a width of 24"

or greater shall employ the use of stick clips spaced at 12" o.c.. Joints, seams and any penetrations shall be sealed with matching tape.

D. Exterior, Exposed Ductwork

Use RIGID FIBERGLASS BOARD as per Part 2, 2.01, B-2. Apply board with mechanical fasteners such as stick clips or weld pins with retainers spaced as required to assure contact between insulation and metal. Finish insulation with two coats of INSULKOTE ET (Part 2, 2.01, C-1) with an intermediate layer of glass fabric equal to Mast-a-Fab. Prime all insulation with Insulkote Primer E or equal for a fully weatherproof system.

E. Supply, Return, Outside, Relief or Exhaust Ductwork Outside of Building Insulation

Use FLEXIBLE FIBERGLASS INSULATION as per Part 2, 2.01, B-3. Ductwork shall be wrapped and secured with outward clinching staples at 4 inches o.c.. Ducts 24" and wider shall have the insulation additionally secured with stick on clips on 18" centers. Insulation shall be lapped 4" and all seams and penetrations shall be vapor sealed with FSK tape (Part 2, 2.01, D-1).

F. Supply, Return, Outside, Relief and Exhaust Ductwork Indicated on the Plans to be Lined.

Use DUCT LINER (Part 2, 2.01, C-5), (Part 2, 2.01, B-5 or B-6), and (Part 2, 2.01, E-1). Liner shall be attached to metal using adhesive covering 90% of the metal. All edges of liner facing the direction of airflow and not receiving metal nosing shall be coated with adhesive. Liner shall be neatly butted without gaps at transverse joints and shall be coated with adhesive at such joints.

Liner shall be folded and compressed in the corners of rectangular duct sections or shall be cut and fit to assure butted edge overlapping. Longitudinal joints in duct liner shall not occur except at the corners of ducts unless the size of the duct and standard liner product dimensions make such necessary.

Interior widths of duct not exceeding 8" do not require mechanical fasteners in addition to adhesive.

Interior widths of duct exceeding 8" will require mechanical fasteners as follows:

Velocity	Transversely Around Perimeter	Longitudinally
2500 fpm dn	At 4" from corners and at intervals not exceeding 12"	At 3" from transverse joints and at intervals not exceeding 18"
2501 fpm to	At 3"from corners and at	At 3" from transverse joints

6000 fpm	intervals not exceeding 6"	and at intervals not exceeding 16"

Mechanical fasteners will be applied with an approved mechanical fastening system. Hand driven pins with hammers will not be approved. Weld pins or "Grip Nails" or equal.

Longitudinal joints in liner shall be coated with adhesive at velocities over 2500 fpm.

Metal nosing that are either channel or zee profile or are integrally-formed from the duct wall shall be securely installed over transversely oriented liner edges facing the airstream at fan discharge and at any interval of lined duct preceded by unlined duct. In addition, where velocities exceed 4000 fpm metal nosing shall be used on upstream edges of liner at every transverse joint.

Where dampers, turning vane assemblies or other devices are placed inside of lined duct or fittings, the installation must not damage the liner or cause erosion of the liner. The use of metal hat sections or other buildout means is optional; when used, buildouts shall be secured to the duct wall with bolts, screws, rivets or welds.

Ductwork indicated to be lined shall be lined accordingly:

1. Up to 2,500 FPM velocity (Part 2, 2.01, B-5)

2. 2,500 FPM to 6,000 FPM velocity (Part 2, 2.01, B-6)

3.03 MISCELLANEOUS

A. Ductwork indicated on the drawings to be internally lined shall not be insulated externally unless the ductwork is outside of the building insulation envelope.

B. All insulating systems described herein shall conform to the latest edition of SMACNA and will comply with NFPA-90A, 90B, 30; TIMA AHC-101; ASTM C390, C167, C553, E84, C177, C423, C411, C916, D903, D93, D1151; ASHRAE; ACGIH; Tested for UL 181.

C. The engineer will reserve the right to accept or reject any and all work not in compliance with the aforementioned. The engineer will be contacted for inspection during any of the following operations:

1. During installation of any ductwork wrapping.

2. During the installation of ductwork that has been lined.

- END OF SECTION -

SECTION 15264- INSULATION FOR PLUMBING SYSTEMS

PART 1 - GENERAL

1.01 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. Rain Leaders and/or Emergency Rain Leaders
2. Traps, trap arms, cold and hot water supplies
3. Traps on condensate receiving floor drains above grade
4. Equipment
5. Hot water piping below grade
6. Domestic cold water, domestic hot water, hot water recirculating and non-potable 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.

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^{o} Ells, 45^{o} 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 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# density, minimum R Factor 4.3 suitable for 0^{o}F, flame spread rating 25, maximum smoke developed rating 50. Equal to Owens Corning - Fiberglass ASJ/S1-11.

C. Interior fittings on 1/2 and 3/4 inch pipes and accessories may use job built mitered fittings of similar material as piping. Valves and fittings 1 inch and up 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. Equal to Certainteed Snap Form Fitting System.

D. Above ground exterior piping shall be equal to Foamglass - .33K factor suitable for 900ºF, 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, 1/2 inch thick, black in color.

J. Semi-rigid fiberglass board, 3 lb density, thermal conductivity compliance ASTM C 165, 650ºF 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, chemically treated for fire and smoke safety. Equal to Manville Pipe and Tank insulation.

2.02 INSULATION FINISH MATERIALS

A. White all Service Jacket(ASJ).

B. Glass fabric equal to Foster Mast-A-Fab.

C. Smooth Aluminum 0.016-inch thickness 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.

2.03 ADHESIVES

A. An air-drying contact adhesive specifically designed for joining seams and ends of Armaflex AP-2000 in Specification Section 2-2.01 I. Equal to Armstrong 520 Adhesive.

2.04 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

3.01 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 18 GA, 180 degree, galvanized sheet metal saddles same length as block supports.

E. All insulation of cold surfaces 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.

3.02 APPLICATION

A. Insulation application schedule

NOMINAL PIPE SIZE	INTERIOR	EXTERIOR ABOVE GRADE	BELOW GRADE/SLAB
1/2" - 1"	1"	1"	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. Factory provided laps of 4" wide ASJ tape of same type as jacket on insulation shall be used on butt joints as per (Part 2-2.01-B)

2. Fittings
Fittings shall be molded fiberglass with snap on PVC jacket and matching white tape on adjacent pipe insulation as per (Part 2-2.01-C).

C. Rain Leaders and/or Emergency Rain Leaders

1. Insulation Thickness 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 1/2"	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. 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. Factory provided laps of 4" wide ASJ tape of same type as jacket on insulation shall be used on butt joints as per (Part 2-2.01-B).

4. Fittings
Fittings shall be molded fiberglass with snap on PVC jacket and matching white tape on adjacent pipe insulation as per (Part 2-2.01-C).

5. Roof drain hubs and pans to be insulated per (Part 2-2.01-I) 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 2-2.01 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 2-2.01 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 3-3.02 A).

2. Provide Foamglass insulation for underground hot water piping as per (Part 2-2.01 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 2-2.01 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 2-2.01 D). Fittings shall be as in (Part 2-2.01 E).

2. Piping
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.

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 2-2.02 C and D). Provide 1/2" wide aluminum bands located at a maximum of 8" O.C.

3.03 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 15268- INSULATION FOR REFRIGERANT PIPING

PART 1 - 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:

Refrigerant Suction Line

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. Submittals and product literature for each insulation type, finish type and equipment served, shall be required. 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.

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.

2.02 INSULATION TYPES

A. Closed cell, flexible elastomeric thermal insulation, black in color, supplied in unslit tubing. Equal to Armaflex AP 2000.

B. Closed cell, elastomeric thermal insulation tape. Commonly supplied in 2" X 1/8" thick. Equal to Armaflex insulation tape.

2.03 ADHESIVES

A. An air drying contact adhesive specifically designed for joining seams and ends of Armaflex AP-2000 in specification section 2.02-A. Equal to Armstrong 520 adhesive.

2.04 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

3.01 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 18 GA, 180 degree, galvanized sheet metal saddles same length as block supports.

E. All insulation of cold surfaces 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 tests to be witnessed by the Architect shall not be insulated until such systems have been tested and approved.

3.02 APPLICATION

A. Insulation shall be butted together and adhered in place with joint adhesive (see Part 2, 2.03, A). All joints and seams shall be sealed with contact adhesive. Where possible insulation shall be slipped on without slitting. Insulation shall be butted firmly to equipment. Short radius elbows shall be mitered, adhesive applied and firmly held together until the adhesive hardens sufficiently to prevent separation.

B. Paint all exposed insulation with Armaflex white paint (see Part 2, 2.04, A).

C. Provide sheet metal saddles for all insulated refrigerant piping at pipe supports.

3.03 INSULATION THICKNESS

A. Provide 3/4" thick insulation materials for all refrigerant suction line piping.

3.04 MISCELLANEOUS

A. This contractor will contact the engineer at the start of all phases of work, as follows:

1. During installation of any concealed insulation.

2. During installation of above ceiling insulation work.

B. The engineer will ascertain the continuation of work subject to the requirements aforementioned.

-END OF SECTION-

SECTION 15400-PLUMBING SYSTEM

PART 1 - GENERAL

1.01 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 plumbing fixtures, accessories and trims as shown on the Drawings and as herein specified.

2. Domestic water service, specialties and piping to all fixtures and equipment.

3. All sanitary sewer piping and equipment shown throughout the building.

1.02 REFERENCES

A. All plumbing installation and fabrication shall be in accordance with applicable State and Local Plumbing Codes.

1.03 SUBMITTALS

A. Submit catalog data and shop drawings for all materials and equipment listed under this section and per basic mechanical requirements. Include submittal data on related specifications also.

B. Materials, fixtures, or equipment installed without review or after rejection shall be replaced by this contractor with acceptable items at the Engineer's direction.

C. All materials, equipment, and appliances 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

2.01 PLUMBING FIXTURES

A. General: Provide all plumbing fixtures complete with trim required, and connect in a manner conforming to the local Building Code. Certain fixtures may be furnished by others under other sections of these Specifications. Provide rough-in and final connections including all valves, traps, specialties, etc. required.

B. Provide traps for all waste connections where not furnished with the equipment and stop cocks or valved shut-offs for all water connections to all sinks and other items of equipment. Stainless steel bell escutcheons shall be installed covering the hub connections below sinks and lavatories and extend to the wall or back of cabinet for a tight fit.

C. Quality and Type of Fixtures:

1. Plumbing fixtures are specified by manufacture and model numbers for the purpose of establishing type and quality. Equal fixtures as manufactured by Kohler, Delta, Eljer, Halsey Taylor, Crane, Smith, Just, or Zurn will be considered.

2. Carriers are specified by Josam catalog numbers to establish quality, type and supporting capacities only. Carriers of equal quality, type and supporting capacities as manufactured by Zurn, J. R. Smith or Wade will be considered. Carrier assemblies, risers and plates to be enameled finish.

3. Floor drains are to be supplied with a metallic cover plate, formed and drilled to fit in place of the strainer for the duration of construction. Upon completion of construction and before final inspection, the new strainer shall be installed. Any strainers installed during construction that have an accumulation of construction debris, concrete, mortar, etc., will be replaced with new strainers.

PART 3 - EXECUTION

3.01 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. Where fixtures are without supporting legs or carriers secure wall hangers to bolts welded to 3/16" steel plates, mounted against walls within chases.

B. Where backs of fixtures join wainscoting or tile, they shall be ground flat and the joints made close. Run bead of white caulking compound around back of fixture at outside edge before final setting. When fixture is set, wipe compound so that joint is sealed. Remove excess compound with solvent. Caulking compound shall be Porter "Brilliant White", Pittsburgh Glass, Sherwin-Williams, or equal.

C. All rough-in sanitary sewer piping shall be properly plugged or capped in a manner approved by the Engineer.

D. Mount fixtures to the heights above finished floor as indicated on the Architectural drawings.

3.02 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. Provide sleeves for all piping penetrations of grade beams, floors above grade and walls. Sleeves for insulated piping above grade shall be sized for the insulation diameter. Annular space between the insulation and sleeve shall be sealed or fire caulked as detailed on the drawings. Sleeves for piping through walls below grade shall be sized for use of compressible rubber link seals unless noted otherwise.

G. Piping thru slabs on grade shall be protected with 1/2" thick closed cell flexible foam insulation minimum 6 inches above and below slab. Wrap all pipes below slab in an approved jacketing material or paint with two coats of a bituminous paint.

H. Piping installed below grade shall have a minimum of 24” cover. Pipes shall be coated with two coats of bituminous paint.

I. Provide solid type stainless steel escutcheon plates at each exposed piping penetration of walls and ceilings and inside cabinets at water and waste penetrations. Escutcheon plates for insulated piping shall be sized for the insulation diameter. Split ring escutcheons will not be allowed. Waste escutcheons inside cabinets or exposed below sinks or lavatories shall be bell type escutcheons sized to cover the hub and fit flush with wall.

J. All piping shall be installed to allow complete draining, slope as required. Provide drain valves at all low points where fixtures cannot be used to drain piping. Provide hose bibb with 3/4" hose connection, vacuum breaker/backflow preventer and service valve at the water main entrance.

K. Provide shutoff valves at each branch from main. Provide shutoff valves for each fixture group to minimize interruption of service for maintenance and repair. Provide an exterior main shutoff valve and valve box as indicated on drawings. Provide area shut-off valves as necessary to facilitate testing and isolation of piping where tested and approved pipes are put into service.

L. Piping thru metal studs shall be isolated from metal to metal contact with plastic bushings

specifically designed for the application.

M. Provide 12" high air chamber for each fixture. Provide water hammer arrestors where indicated on the drawings. Arrestors shall be sized for the fixture group installed on and shall be accessible for inspection and/or replacement, provide access panels as required.

N. All stubouts and exposed piping shall be rigidly supported to eliminate movement.

O. This Contractor shall complete all equipment connections to the domestic water piping system. Provide shutoff valves and unions for each connection.

P. Connections to water heaters and connections between ferrous and copper pipe shall be made with dielectric unions or flanges. Joints between plastic and metallic pipe shall be made with transition fittings for the specified purpose.

3.04 TESTING

A. All piping shall be tested before being insulated or concealed in any manner. Where leaks or defects develop, required corrections shall be made and tests repeated until systems are proven satisfactory.

B. Water piping systems shall be subjected to a hydrostatic test of one hundred twenty five pounds minimum or 1 1/2 times operating pressure which ever is greater. The system shall be proven tight after a twenty-four (24) hour test.

C. All rainwater leaders, soil waste and vent piping shall be subjected to a hydrostatic test of not less than a 10-foot head. Piping shall be tested for not less than 4 hours, prior to installing fixtures. Underground piping shall be tested before backfilling.

D. Provide test report in booklet form showing all field test performed to prove compliance with the specified performance criteria. Booklet shall be submitted prior to submitting for final payment. Booklet shall include the following

1. SYSTEM TESTED (sanitary) (domestic water) (rain leaders)
2. Date of test
3. Test medium
4. Persons present
5. Pressure tested
6. Lines tested ands location
7. Length of time test pressure was held
8. Pressure drop
9. Water pressure at most remote and highest location
10. Residual chlorine

E. This Contractor shall conduct all specified tests until approved by the Engineer. All tests shall be repeated until approved by the Engineer. Piping systems shall not be covered or otherwise concealed until tests inspections have been made and approvals obtained. This Contractor shall notify the Engineer four days prior to testing to allow for scheduling.

3.05 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.

3.06 CLEANING

A. At completion of all work, fixtures, exposed materials and equipment shall be thoroughly cleaned.

B. All strainer screens shall be removed and cleaned.

3.07 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 15504- REFRIGERANT PIPING SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide refrigerant piping systems complete with all accessories as specified herein and/or as indicated on the Drawings.

B. Pressure test all refrigerant piping systems as specified herein.

1.02 REFERENCES

American National Standards Institute (ANSI)

American Society of Mechanical Engineers (ASME)

American Society of Testing and Materials (ASTM)

1.03 SUBMITTALS

A. Submit manufacturer's catalog data for all materials and equipment listed under this section.

PART 2 - PRODUCTS

2.01 PIPING

A. Refrigerant Piping shall be copper ACR tubing Type L hard drawn or Type K per ASTM B280 and shall be cleaned, dehydrated, charged with gaseous nitrogen and sealed. Fittings shall be forged or wrought copper. Joints shall be brazed silver.

2.02 ACCESSORIES

A. Filter/dryers in sizes 1/2" and larger shall be the full-flow, replaceable-core type. Sizes smaller than 1/2" shall be the sealed type. Cores shall be of a suitable desiccant that will not plug, cake, dust, channel, or break down but shall remove water, acid, and foreign material from the refrigerant. The dryer shall be constructed so that no desiccant will pass into the refrigerant lines. A filter/dryer shall be provided in the liquid line to each evaporator and shall be piped with two isolation valves. Pressure drop through the dryer shall not exceed 2 psi when operating at full connected evaporator capacity.

B. Liquid Sight Glasses. Sight glasses shall be double glass, see-through type, with cover cap on each side. Sight glass shall be provided in liquid line immediately preceding each expansion valve. Glass shall be furnished with a color-change-type moisture indicator.

C. Moisture Indicators. Color-change moisture indicators shall be provided downstream from each filter/dryer and bypass or shall be combined as a single unit in the liquid sight glasses.

D. Shutoff Valves. Shutoff valves shall be packless diaphragm (in sizes commercially

available), with packed, ground-finish stem, key operated, back seating, sealed-cap type; otherwise, angle pattern valves shall be used whenever possible.

E. Solenoid Valves. Valves shall be brass or steel body, packless type, with corrosion-resistant steel trim, rated for continuous-duty service, direct-or pilot-operated, provided with manual lift stems, and designed for use with type of refrigerant used. The valve capacities shall be sufficient for the requirements of the installation at a pressure drop not in excess of 2 psi. Valves in suction lines shall be sized in accordance with temperature rise and superheat normal to the system.

F. Expansion Valves. Shall be thermal-expansion type to suit specific system refrigerant, designed to fit coil distributors, and capable of operating from 40 to 100 percent of full load at system head pressure without hunting or liquid hammer. Valves shall have external equalizer connections and external superheat adjustments with seal caps. Joint connections shall be mechanical threaded or flanged type. Valves shall require not over 4 degrees F. superheat change to move from fully open to fully closed position. Superheat setting shall be 10 degrees F. at full load. Expansion valves shall be balanced double seated or pilot operated, capable of stable operation at 15 percent design load. Each valve shall be provided with external strainer.

PART 3 - EXECUTION

3.01 GENERAL

A. Piping shall be accurately cut to measurements established at he 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. Provide sleeves for all piping penetrations of floors and walls. Sleeves for insulated piping above grade shall be sized for the insulation diameter.

D. Provide escutcheon plates at each exposed piping penetration of walls and ceilings. Escutcheon plates for insulated piping shall be sized for the insulation diameter.

3.02 REFRIGERANT PIPING SYSTEMS

A. Provide a complete refrigerant tubing system as indicated herein and on the Drawings.

B. All refrigerant piping shall be ACR Type L hard drawn tubing except for exposed piping in public areas which shall be ACR Type K tubing.

C. All refrigerant lines shall be sized in accordance with the equipment manufacturers recommendations.

D. All elbows in refrigerant piping systems shall be long radius elbows.

E. Joints shall be silver brazed using a continuous flow of nitrogen inside the piping to prevent oxidation.

F. All piping shall be rigidly supported.

G. Provide filter driers, sight glasses, moisture indicators, shutoff valves, solenoid valves and expansion valves when not provided as standard or as an option on equipment. Components shall be specifically designed for refrigeration service.

H. Pressure test each piping system at 150 psig using dry nitrogen. Test each joint for leaks by spraying with soapy water. Joints that leak shall be disassembled, cleaned to bare copper and silver brazed again. Pressure test shall be repeated until all joints pass.

I. Vacuum test each piping system after pressure test is completed. Piping shall be drawn to 500 microns of HG and tested for 12 hours without additional pumping. If piping system fails vacuum test repeat pressure test.

J. Charge each piping system after vacuum test is completed. Charge each system per manufacturer's instructions. Halide torch test each joint after charging.

- END OF SECTION -

SECTION 15505
CONDENSATE DRAIN PIPING SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide condensate drain piping systems complete with all accessories as specified herein and/or as indicated on the Drawings.

1.02 REFERENCES

American National Standards Institute (ANSI)

American Society of Mechanical Engineers (ASME)

American Society of Testing and Materials (ASTM)

1.03 SUBMITTALS

A. Submit manufacturer's catalog data for all materials and equipment listed under this section.

PART 2 - PRODUCT

1.04 PIPING

A. Condensate drain piping shall be SCH 40 PVC.

PART 3 - EXECUTION

3.01 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. Provide sleeves for all piping penetrations of floors and walls. Sleeves for insulated piping above grade shall be sized for the insulation diameter.

D. Provide escutcheon plates at each exposed piping penetration of walls and ceilings. Escutcheon plates for insulated piping shall be sized for the insulation diameter.

3.02 CONDENSATE DRAIN PIPING

A. Provide condensate drain trap with a depth at least one inch greater than the fan total static pressure as measured from the discharge invert to the trap obvert.

B. Provide a vent on the trap if the discharge height is ten feet or greater.

C. Slope piping at a uniform slope of at least 1/8” inch per foot to ensure proper drainage.

D. Condensate drain lines shall be adequately supported to prevent low points which could cause double trapping.

E. Condensate drain lines indicated to be terminated at floor drains shall either be turned down through this floor drain grate or be provided an indirect waste funnel for the floor drain.

- END OF SECTION -

SECTION 15682- AIR COOLED SPLIT SYSTEM HEAT PUMPS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work of this section consists of providing all material, labor and equipment necessary for the fabrication and installation of all equipment and appurtenances specified herein and as indicated on the drawings.

1. 2 1/2 - 6 ton 3 phase units.

B. Not all the equipment specified herein may be used on this project. Refer to schedules on drawings for equipment requirements.

C. All compressors shall have 5 year warranty.

1.02 SUBMITTALS

A. Submit catalog data, shop drawings and installation instructions prior to commencement of work for all materials and equipment incorporated into the drawings and specified herein.

PART 2 - PRODUCTS

2.01 2 1/2 - 6 Ton Three Phase Split System Heat Pumps.

A. Units shall bear UL label and be certified in accordance with A.R.I. standards. Units shall be pre-charged and be pre-wired ready for final connections.

B. Fan discharge and unit arrangement shall be as indicated on the plans.

C. Units will feature the following as standard: Compressor crankcase heaters, compressor internal overload protection, O.D. pressure taps for refrigerant. pressure checks, refrigerant service valves and refrigerant filter dryer, electronic defrost control with defrost on demand, outdoor temperature sensor, switchover valve and head pressure control for low ambient operation.

D. Units will feature the following accessories: Outdoor low ambient operation, compressor time delay relay, high and low pressure protection and coil guards.

E. Equipment shall be Trane, Carrier or Lennox..

PART 3 - EXECUTION

3.01 GENERAL

A. All equipment shall be installed in accordance with the recommendations of the manufacturer.

B. Refrigerant line sizes shall be determined in accordance with the manufacturer's recommendations. This contractor is responsible for any changes or accessories required due to the specific requirements of a particular manufacturer. All refrigerant lines shall be sized by the manufacturer and approved by the engineer prior to any work commencement.

C. Provide and install any accessories necessary for a complete and functioning system.

D. All condensers shall be set on 6" thick concrete slabs for on grade installations. For roof mounted condensers see mechanical prints for details.

-END OF SECTION-

SECTION 15737- SPLIT SYSTEM AIR HANDLING UNITS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work of this section consists of providing all labor, materials, equipment and services necessary for the fabrication and installation of all equipment and appurtenances in connection with the heating, ventilating and air conditioning work. This includes work as shown on the drawings and as specified herein.

1.02 SUBMITTALS

A. Submit catalog data, shop drawings and installation instructions prior to commencement of work for all materials and equipment incorporated into the drawings and specified herein.

PART 2 – PRODUCTS

2.01 SPLIT SYSTEM AIR HANDLING UNITS

A. General

1. Provide split system air handlers of the type, capacity, configuration and quantities, as scheduled on the drawings and specified herein.

2. Air handling units shall be completely factory assembled including coil, condensate drain pan, fan, motor, filters and controls in an insulated casing.

3. Casings shall be 22 gauge steel with baked enamel finish with internal insulation. Knockouts shall be provided for electrical power, control wiring and refrigerant piping.

4. Blowers shall be centrifugal type, statically and dynamically balanced, with permanently lubricated bearings permanently lubricated, internally protected motors.

5. Evaporator coil shall be aluminum fins mechanically bonded to 3/8” copper tubing. Coil shall be factory pressure and leak tested.

6. Condensate pan shall be double sloped and constructed of stainless steel or plastic.

7. Air handler shall be equipped with fan contactor, single point power entry and 24 volt transformer.

8. Filter Racks shall accept standard size filters. Provide accessible field fabricated racks where manufacturer does not include provisions for filters.

B. 1 to 5 Ton Air Handling Units

1. Fan motor shall be direct drive, multi-speed.

D. Electric heaters, when specified, shall be UL approved and fabricated to be installed directly on the fan discharge. The heater shall be equipped with high limit controls.

E. Split system air handling units shall be Carrier, Trane, or Lennox.

PART 3 - EXECUTION

3.01 GENERAL

A. All equipment shall be installed in accordance with the manufacturer installation instructions and as indicated on the drawings or specified herein.

B. Provide vibration isolators for split system air handling units, rubber in shear for floor mounted models and spring loaded isolators for horizontally hung units.

-END OF SECTION-

SECTION 15762- SPUN ALUMINUM GRAVITY VENTILATORS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide ventilating systems as indicated on the drawings and as specified herein with all accessories required for proper system balance.

1.02 REFERENCES

Air Diffusion Council (ADC)
Air Movement and Control Association (AMCA)
American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)
National Fire Protection Association (NFPA)
Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
Underwriters' Laboratories, Inc. (UL)

1.03 SUBMITTALS

A. Submit catalog data and shop drawings for all materials and equipment listed under this section.

PART 2 - PRODUCTS

2.01 SPUN ALUMINUM GRAVITY VENTILATORS

A. Spun aluminum gravity ventilators constructed of heavy gauge aluminum with formed edges for additional strength. Covers shall be detachable. Ventilators shall be equipped with 1/2 x 1/2 galvanized birdscreen and welded wire fabric. Curb cap shall be of one-piece construction for weather tightness with pre-punched holes in the curb for ease of mounting. An inlet venturi shall be provided as an integral part of the curb for rigidity and reduction of airflow losses.

B. The following accessories shall be provided when indicated in the schedule:

1. Roof curb of galvanized steel construction with wooden nailing strips and fiberglass insulation rigid liner.

C. Cook units are specified to establish quality of equipment. Equals from Twin City, Greenheck and Penn Ventilation will be considered.

2.02 GENERAL

A. Provide and install ventilators and accessories as scheduled on the Drawings and specified in this Section.

B. Equivalent ventilator selection shall not decrease free net area of the model specified.

PART 3 - EXECUTION

3.01 SPUN ALUMINUM GRAVITY VENTILATORS

A. Set and install in ventilators as specified and indicated on the Drawings.

B. Equipment installation shall be such that access to specified accessories can be easily serviced.

C. Provide flexible connectors at inlet of gravity ventilators.

-END OF SECTION-

SECTION 15881

GALVANIZED SHEET METAL DUCTWORK

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide a galvanized sheet metal ductwork system as indicated on the drawings, complete with all accessories specified herein and as required for proper system operation and balance.

1.02 REFERENCES

Air Diffusion Council (ADC)

Air Movement and Control Association (AMCA)

American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE)

National Fire Protection Association (NFPA)

Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

Underwriters Laboratories, Inc. (UL)

1.03 SUBMITTALS

A. Submit catalogue data and shop drawings for all materials and equipment listed under this section.

PART 2 - PRODUCTS

2.01 GALVANIZED SHEET METAL DUCTWORK

A. Sheet Metal Ductwork

Galvanized steel ductwork shall be carbon steel, of lock-forming quality, hot dip galvanized, with regular spangle-type zinc coating, conforming to ASTM A-527/A527M-G90.

In addition to the above, all rectangular ductwork exposed in occupied areas shall also have a paint grip finish that will readily accept a field painted finish. This also applies to all fabricated sheet metal accessories including hangers, drives, etc.

Sheet metal gages and reinforcement shall conform to the latest edition SMACNA HVAC duct construction standards, with the exception that 24 gage will be the thinnest gage allowed for rectangular ductwork.

Round sheet metal ducts shall use the following gages:

Duct Dia.	Max. 2" W.G. Positive Static Press.	Max. 10" W.G. Positive Static Press.	Max. 2" W.G. Negative Static Press.
6-14	24	24	24
15-26	24	22	22
27-36	22	20	20
37-50	20	20	18
51-60	18	18	16
61-84	16	16	14

2.02 DUCTWORK SEALANT

A. Sealant shall be non-flammable when wet, fire resistive when dry, and suitable for use in high velocity ductwork. Shall meet NFPA 90A and 90B and be UL classified. Sealant shall have a maximum 25 flame spread and 50 smoke developed (dry state) compound specifically for sealing ductwork.

B. Tape for use with duct sealant shall be specifically designated by the manufacturer for ductwork sealing.

2.03 DUCTWORK ACCESSORIES

A. General

Provide duct accessories as indicated on the drawings and as required for proper system operation and balance.

B. Flexible Duct Connections

Flexible duct connections shall be UL listed fire retardant neoprene coated woven glass fiber fabric connections, shall conform to NFPA 90A and 90B and have a maximum flame spread rating of 25 and a maximum smoke development rating of 50.

1. For static pressures up to 3", flexible connection fabric shall be 22 oz./sq. yard and 3" wide with 3" metal on either side of fabric. Equal to Duro Dyne #10105.

2. For static pressures 3" or greater, flexible connection fabric shall be 30 oz./sq. yard and 3" wide with 3" wide metal on either side of fabric. Equal to Duro Dyne #10003.

C. Manual Balancing Dampers

1. Dampers in round ductwork (low pressure) shall be single blade type with a 20 gage beaded frame. The blade is to be two layers of galvanized steel with the equivalent thickness of 14 gage. A neoprene seal shall be sandwiched between the two blades. The damper axle shall be ½" diameter and extend 6" beyond the frame for the damper quadrant or motorized operator and shall be installed in stainless steel or oil impregnated bronze bearings.

The damper shall be Ruskin model CDRS25, American Warming and Ventilating model VC-25 or Air Balance Inc. Model AC-530.

2. Dampers in rectangular ductwork greater than 8” x 10” shall be the opposed blade type, complete with concealed linkage and extended shaft for the damper quadrant or motorized operator, 16 gage frame and double skin airfoil blades with the equivalent thickness of 14 gage. The axle is to be ½” plated hex steel with stainless steel or oil impregnated bearings. The blades shall have neoprene edge seals and compression jamb seals.

   The damper shall be Ruskin model CD-60, American Warming model VC-27 or Air Balance Inc. Model VC-27 with optional bronze bearings or Air balance Inc. Model AC-15. Dampers listed as 8” x 10” or smaller shall be single blade.

3. All dampers shall have an operable blade area equal to the duct net area. No blank off plates will be allowed in place of non-standard blade widths.

D. Damper Quadrants

Damper Quadrants shall have indicators showing open and closed positions, and shall be Ventfabrics, "Ventlock", as follows:

1. Dampers with shaft length 12" or less - No. 620 for base ductwork and No. 637 for insulated ductwork.

2. Dampers with shaft length longer than 12" - No. 637.

E. Motorized Dampers

Motorized dampers shall be the same as the manual dampers with the addition of a motorized operator as specified in the controls specification section.

F. Splitter Dampers and Adjustable Volume extractors

Rectangular duct mounted splitter dampers and adjustable volume extractors shall be fabricated form 16-gauge steel with a hemmed leading edge. The trailing edge shall be pivoted on a rod or hinges. Install in accordance with the latest edition a SMACNA's Low Velocity Manual and as detailed on the drawings. Secure rod to leading edge of damper and extend rod through side of ductwork using Ventlock #603 ball joint bracket with set screw.

G. Turning Vanes

1. Single thickness turning vanes shall be 4-1/2” radius, installed on runners with a 3-1/4” blade spacing. Blades shall be 22 gauge.

2. Double thickness turning vanes shall be 2” radius, installed on runners with a 2-1/8” blade spacing. Blades shall be 26 gauge.

H. Access Doors

1. Duct Access Doors shall be UL labeled, galvanized steel, double panel construction, internally insulated with minimum 1 inch thick fiberglass insulation complete with gaskets.

2. Access doors held in place with sheet metal screws are not acceptable.

3. The location of the access doors shall be coordinated for easy access to the fire damper fusible links.

4. The following access doors are specified to establish the quality of the products. Other products by prior approved manufacturer's will be considered.

   a. Rectangular, low pressure duct.
   United Air, Series ADH, 24 gauge with hinged frame connection and cam lock closures. Doors shall be 16" x 16"or large as possible.

   b. Rectangular, high pressure duct.
   Kees Incorporated, Series ADC-HP, 24 gauge galvanized panel, 22 gauge frame with camlock closures on all sides. Provide safety chain.

   c. Round, low pressure duct.
   United Air, Series ADC, 22 gauge, spiral compression with conical springs and hand knobs.

   d. Round, high pressure duct.
   Ductmate Industries, Inc., sandwich access doors with conical springs and hand wheels.

2.04 FIRE DAMPERS

A. Fire dampers shall be factory assembled and shall bear the U.L. label for the fire resistant rating required at each location. Each damper shall be constructed, tested and labeled in compliance with U.L. Standard 555. Each damper shall have been tested per AMCA 500, to prove closure under the static pressure and dynamic air flow conditions indicated on the drawings. Each damper shall bear an U.L. approved label identifying its classification as a "Dynamic Rated Fire Damper".

B. Fire dampers shall be the curtain type with interlocking galvanized steel blades folded out of the air stream.

C. Dampers shall have stainless steel closure springs for positive closure and latch mechanism to maintain the closed position until manually reset.

D. Fusible links shall separate at 165 degrees F.

E. Provide low resistance type frames. Frames shall provide free area equal to or exceeding the cross-sectional area of the connecting ductwork when the damper is in the "open" position. Frame styles shall be as required for duct shape and system velocity. Dampers shall have the blades out of the air stream.

F. Provide all fire dampers with an integral sleeve welded to the fire damper frame. The

sleeve shall extend a minimum of 4" on either side of finished wall.

G. Provide retaining angle frames conforming to manufacturer's UL listing

H. Fire dampers shall be as follows:

1. 3 hr.:
United Air Model D Series 255
Ruskin Series DIBD23
Air Balance Inc. Series D39

2. 1-1/2 hr.:
United Air Model D Series 205
Ruskin Series DIBD2
Air Balance Inc. Series D19C

3. Grille mounted, 1-1/2 hr.:
United Air Model D, Series 115A
Ruskin Series DIBDT-A
Air Balance Inc. Model 119F

I. Product submittals shall include complete manufacturer's installation instructions. Failure to do so shall be grounds for rejection.

2.05.1 COMBINATION FIRE/SMOKE DAMPERS

A. Combination fire/smoke dampers shall be factory assembled and shall bear the U.L. label for the fire resistant rating required at each location. Dampers shall have been constructed and tested in compliance with U.L. Standard 555 and U.L. Standard 555S. Each damper shall have been tested per AMCA 500, to prove closure under the static pressure and dynamic air flow conditions indicated on the drawings. Each damper shall bear an U.L. approved label identifying its classification as a "Dynamic Rated Fire Damper" and shall further be classified by UL as a Leakage Rated Damper for use in smoke control systems.

B. Dampers blades shall be 16 gage galvanized steel and shall be triple crimped. The blades shall be on 6" centers and shall have edge and jamb seals. The blade linkage shall be concealed in the jamb. Bearings shall be Oilite bronze. Axles shall be ½" plated hex. The control shaft shall be ½" round, extending 3" beyond the frame.

C. Fusible links shall separate at 165 degrees F.

D. Provide low resistance type frames. Frames shall be 16 gage galvanized steel and shall provide a free area equal to or exceeding the cross-sectional area of the connecting ductwork when the damper is in the "open" position. Frame styles shall be as required for duct shape and system velocity.

E. Provide all fire dampers with an integral sleeve welded to the fire damper frame. The sleeve shall extend a minimum of 4" on either side of finished wall.

F. Operators shall be the electric type, operating on 24 vac or 120 vac, 60hz and shall have spring return such that the damper will close upon power interruption. All wiring and

conduit required to interconnect the damper with the detection and/or alarm or other systems shall be furnished by others.

G. Combination fire/smoke dampers rated for 1-1/2 hours shall be as follows:

United Air Model D-502
Ruskin Series FDS60
Air Balance Inc. Model FS2

H. Product submittals shall include complete manufacturer's installation instructions. Failure to do so shall be grounds for rejection.

2.06 CEILING RADIATION DAMPERS

A. Provide UL Classified ceiling fire dampers for fire and heat protection of all HVAC penetrations of fire rated ceilings. Dampers shall be classified under UL Standard 555C for use in all floor/ceiling or roof/ceiling assemblies with fire resistance ratings of 3 hours or less.

B. Ceiling fire dampers shall have minimum 20 gauge galvanized steel frames, 22 gauge galvanized steel blades and 165 degrees F fusible links. Blades shall be insulated as required for UL rating.

C. Dampers shall be provided with ceramic insulating blankets as required to permit use of lay-in style steel ceiling diffusers.

D. Ceiling radiation dampers shall be as follows:

1. Rectangular air devices:
United Air Model CFD-1
Ruskin Model CFD
Air Balance Inc. Model 289

2. Round air device:
United Air Model CFD-R
Ruskin Model CFDR
Air Balance Inc. Model 295

C. Product submittal shall include complete manufacturer's installation instructions. Failure to do so shall be grounds for rejection.

2.07 45 DEGREE, SQUARE-TO-ROUND TAKEOFF FITTINGS

A. All branch duct takeoffs to a single air distribution device, shall be made using a rectangular, 45 degree takeoff that transitions to the round duct size shown on the plans.

B. The takeoff shall be fabricated from hot dipped galvanized steel sheets of lock forming quality per ASTM-A653. The longitudinal seam shall have a continuous weld for no air leakage at 2” W.G. static pressure.

C. Takeoff shall have a 1” wide gasketed flange with pre-drilled screw holes.

D. Sizes 4” through 12” to have a reinforced damper axis with ¼” regulator. Sizes 14” through 20” to have a 3/8” continuous rod axis with nylon grommets installed at sleeve penetrations.

E. All sizes shall be fabricated with a damper handle insulation standoff.

F. Crown Model 3300DS is specified to establish the product quality, equals will be considered.

2.08 INSULATED FLEXIBLE DUCTWORK

A. Insulated flexible duct shall be listed under UL standard 181 as class 1 air duct and shall comply with NFPA standards 90A and 90B. The duct shall be 25/50 rated for flame spread/smoke developed.

B. The duct shall be constructed with corrosion resistant galvanized steel wire helix formed and mechanically locked to fabric.

C. The duct shall be insulated with a factory applied 1-1/2 inch thick, 3/4 pound density fiberglass blanket with a K value of 0.25 at 75 degrees F.

D. The vapor barrier shall be a fire retardant, reinforced, metallized outer jacket with a permance of 0.05 perm.

E. Flexible ductwork upstream of VAV boxes.

1. The duct shall be rated for 12 inches W.G. positive pressure and 5 inches W.G. negative pressure through 16 inch diameter and 1 W.G. inch negative pressure for 18 and 20 inch diameters. The rated temperature range shall be 20 to 250 degrees F. The UL rated velocity shall be 5500 fpm.

2. The duct inner fabric shall be a heavy coated fiberglass cloth fabric mechanically locked to the helix without the use of adhesives.

3. Insulated flexible duct shall be Flexmaster Type 4M-Insulated.

F. Flexible ductwork downstream of VAV boxes and to individual air devices.

1. The duct shall be rated for 6 inches W.G. positive pressure and 4 inches W.G. negative pressure through 16” diameter and 1” W.G. negative pressure for 18 and 20 inch diameters. The rated temperature range shall be –20 to 250 degrees F. The UL rated velocity shall be 4000 fpm.

2. The duct inner fabric shall be CPE mechanically locked to the helix without the use of adhesives.

3. Insulated flexible duct shall be Flexmaster Type 8M.

PART 3 - EXECUTION

3.01 GALVANIZED SHEET METAL DUCTWORK

A. Sheet Metal Ductwork shall be fabricated and installed per the latest edition of the SMACNA HVAC duct construction standards and ASHRAE Handbook.

B. All ductwork shall be supported in accordance with SMACNA standards. All threaded rod supports shall be double nutted.

C. Duct transitions shall be gradual, the angle of the side of the transition piece shall not exceed 15 degrees form the straight run of duct extended.

D. All rectangular duct elbows shall be fabricated in accordance with either of the following:

1. Radius Elbow - All radius elbows shall have a centerline radius equal to 1.5 times the width of the duct. This results in an inside radius equal to the width of the duct. Under no circumstances will radius elbows with a centerline radius of 0.5 times the duct width and an inside radius of 0.0 (90 degrees angle) be allowed.

2. Mitered Elbow (Square Throat - Square Heel) - Where radius elbows will not fit, a mitered elbow will be required. All mitered elbows with an angle over 45 shall be provided with turning valves.

E. All duct sizes shown on plans are net free area.

F. All duct sections and fittings shall be fabricated with the ASTM stamp side of the sheets used for the exterior surfaces.

3.02 DUCT SEALANT

All duct systems shall be sealed to meet SMACNA seal class C. Seal per SMCNA recommended methods with sealant or sealant plus tape as appropriate.

3.03 DUCTWORK ACCESSORIES

A. Flexible duct connection shall be installed on all ductwork required to be attached to motor driven equipment.

The ends of the flexible connection shall be overlapped and sealed, to prevent air leakage, per the manufacturer’s recommendations. If manufacturer does not have recommended method of sealing, the following method shall be used. Both ends of the flexible connection shall be extended three inches and turned inward (into air stream). Silicone caulking shall be applied between the overlap and outward clinching staples shall be used to fasten the lap.

B. Manual Balancing Dampers, Splitter Dampers, Quadrant Dampers

All damper shall be installed so that damper blades have a full range of movement without interference or binding. Damper quadrant shall be located to provide easy access.

C. Turning Vanes

Turning vanes shall be installed in all mitered (Square Toe-Square Heel) elbows with an angle greater than 45 degrees.

Single thickness turning vanes shall be install in all elbows requiring up to a maximum vane length of 36". Double thickness turning vanes shall be installed in all elbows requiring a vane length greater than 36".

The trailing edge of the turning vanes shall be installed tangent to the air stream.

3.04 FIRE DAMPERS

A. Fire dampers shall be installed in conformance with the manufacturer's installation instructions, UL 555, NFPA 90A and SMACNA.

G. Provide duct access panels where fire damper fusible links are not accessible through other openings. Location and size shall be sufficient to reset fire dampers and replace fusible links. Locations and size of each access panel shall be approved by the Architect. Where access is deemed inadequate, the Contractor shall correct the situation as directed by the Architect.

3.05 COMBINATION FIRE/SMOKE DAMPERS

A. Combination fire/smoke dampers shall be installed in conformance with the manufacturer's installation instructions, UL 555, UL 555S, NFPA 90A, NFPA92A and SMACNA.

B. Provide duct access panels where fire/smoke damper fusible links and operators when not accessible through other openings. Location and size shall be sufficient to reset fire dampers, replace fusible links and service the operators. Locations and size of each access panel shall be approved by the Architect. Where access is deemed inadequate, the Contractor shall correct the situation as directed by the Architect.

3.05 CEILING RADIATION DAMPERS

A. Ceiling radiation dampers shall be installed in accordance with the manufacturer's recommendations, NFPA and UL Fire Resistance Directory.

B. Contractor shall provide support and bracing of diffusers, dampers, duct drops and ducts as required to maintain fire and heat protection ratings.

C. Product submittals shall include complete manufacturer's installation recommendations. Failure to do so shall be grounds for rejection and resubmittal.

3.06 RECTANGULAR TO ROUND TAKE-OFFS

A. Rectangular to round take-offs shall be installed in accurately cut openings in the sheet metal duct work.

B. Rectangular to round take-offs shall be suitably sealed for the pressure class required.

C. The quadrant damper shall be checked for free movement and left in the full open position after the take-off and insulation is installed.

3.07 INSULATED FLEXIBLE DUCTWORK

A. For runouts to air distribution devices, the length of flexible duct work shall not exceed 5 feet. For lengths of duct required over 5 feet, the remainder shall be galvanized steel round duct.

B. Bends in flexible duct shall be made with not less than 1 duct diameter centerline radius. Extend flexible duct a few inches beyond end of sheet metal connection before bending.

C. Flexible duct shall be installed and supplied in accordance with SMACNA standards.

D. Flexible duct shall be secured to sheet metal duct with a draw band and independent of flexible duct insulation. The insulation shall be secured with a separate draw band.

- END OF SECTION -

SECTION 15888- SPIRAL DUCTWORK

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide air distribution systems as indicated on the drawings, complete with all accessories specified herein and as required for proper system operation and balance.

1.02 REFERENCES

Air Diffusion Council (ADC)

Air Movement and Control Association (AMCA)

American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE)

National Fire Protection Association (NFPA)

Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

Underwriters Laboratories, Inc. (UL)

1.03 SUBMITTALS

A. Submit catalog data and shop drawings for all materials and equipment listed under this section.

PART 2 - PRODUCTS

2.01 SPIRAL DUCTWORK - GENERAL

A. Unless otherwise specified all duct and fittings shall be galvanized sheet metal in accordance with ASTM A527. Duct shall be spiral lockseam construction.

B. All duct materials directly exposed to airflow shall be non-combustible. When insulation is required for thermal or acoustical purposes, it shall be sandwiched between a solid or perforated inner and a solid outer pressure shell.

C. Duct sealants shall be UL classified with a flame-spread rating of 25 or less and smoke-developed rating of 50 or less. Sealants shall have a solid content of 70 percent or greater and shall not require any type of surface cleaning or preparation prior to application.

D. Duct shall be provided in continuous, unjoined lengths wherever possible. Except when interrupted by fittings, round duct sections shall be at least 10 feet long.

E. All duct diameter dimensions shown on the drawings are the inner free area dimensions.

F. Joint Construction

1. All round sections in diameters of less than 36 inches shall be provided with slip

couplings.

a. All fitting ends shall be sized to slip inside mating duct sections. They shall provide a tight fit and have a minimum 2-inch insertion length with a stop bead. No additional coupling shall be required for duct-to-fitting joints.
b. Duct-to-duct joints shall be by means of a slip coupling that fits inside both mating duct sections (fitting size). Couplings shall provide a tight fit and have minimum 2-inch insertion length with a stop bead.
c. Fitting-to-fitting joints shall be by means of a slip coupling that slips over both mating fitting ends (duct size). Couplings shall provide a tight fit and have a minimum 2-inch overlap length.

2. All round sections with diameters greater than 36 inches shall be provided with flanged joints.
   a. Welded flanges shall be solid welded or tack welded. The finished flange assembly must be able to withstand maximum design pressure with no leakage.
   b. Vanstone flanges on spiral duct shall include a fully welded sleeve that fits inside the end of the duct and provides a flange that will retain the angle ring on the duct. On fittings, the retaining flange may be a turn-out of the fitting body.
   c. Unless otherwise specified, duct shall be furnished with welded flanges, and fittings shall be furnished with Vanstone flanges.
   d. Flanges shall be constructed of galvanized steel in 14 gauge through 24 inches in diameter, 12 gauge from 25 through 42 inches in diameter, and 10 gauge from 43 through 60 inches in diameter.
   e. Flanges larger than 60 inches in diameter shall be of standard iron angle rind construction.
3. Joints for double wall duct shall be the same as for the single wall duct with the coupling/flange being applied to the outer pressure shell. An inner coupling shall be provided for the inner liner.

G. All takeoff or branch entrances shall be by means of factory-fabricated fittings or factory-fabricated duct/tap assemblies.

2.02 DOUBLE WALL INSULATED ROUND DUCT

A. Insulated duct shall be constructed of a perforated inner liner, 1-inch thick layer of fiberglass insulation, and an outer pressure shell. The outer pressure shell shall be 2 inches larger than the nominal inner liner dimension. The outer pressure shell gauge shall be based on actual outer shell dimensions as follows:

Pressure Shell Diameter	Gauge 2-10 IN Wg
3-14	26
15-26	24
27-36	22
37-50	20
51-60	18

B. Liners shall be constructed as follows:

Inner Liner Diameter (In)	Gauge
3-26	26
27-60	24

C. Fittings:

1. Fittings for double wall duct shall be constructed with an inner perforated liner, a 1" layer of fiberglass insulation and an outer pressure shell.
2. Rectangular to round fittings are to be concentric.
3. Register taps are to be double wall. All register taps shall be installed with adjustable volume extractors with gear operators that can be adjusted through the face of the register.
4. 90 degree elbows shall be 5 piece construction: Semco E905, ESM E90 or Hamlin DWE-90-5.
5. Tees shall be combination tee or reducing combination tee: ESM CB or CBR, Semco CMT or CMTR.

2.03 SINGLE WALL ROUND DUCT

A. Single wall duct shall be fabricated in the gauges shown for the pressure shell of double wall ducts.

B. Fittings:

1. Rectangular to round fittings are to be concentric.

2. 90 degree elbows shall be 5 piece construction: Semco E905, ESM E90 or Hamlin DWE-90-5.

3. Tees shall be combination tee or reducing combination tee: ESM CR or CBR, Semco CMT or CMTR.

C. Single wall round ductwork shall be Eastern Sheet Metal (ESM), SEMCO or Hamlin

2.04 DUCTWORK ACCESSORIES

A. General: Provide duct accessories as indicated on the drawings and as required for proper system operation and balance.

B. Manual Balancing Dampers shall be as specified in Section 15881.

C. Duct access doors shall be as specified in Section 15881.

2.05 DUCT SEALANTS

A. All factory fabricated sheet metal ductwork shall be sealed in accordance with the manufacturers and SMACNA recommendations.

2.06 FIRE DAMPERS

A. Fire dampers shall be as specified in Section 15881.

2.06 COMBINATION FIRE/SMOKE DAMPERS

A. Combination fire/smoke dampers shall be as specified in Section 15881.

PART 3 - EXECUTION

3.01 FACTORY FABRICATED SHEET METAL DUCTWORK

A. All factory fabricated sheet metal ductwork shall be installed in accordance with the manufacturers specifications and guidelines.

B. Duct supports shall be provided at a maximum spacing of 12 feet on center.

C. Duct shall be constructed and installed to maintain minimum friction loss throughout.

1. The fewest possible number of duct joints shall be used, and in no case shall joints be closer than at 12-foot intervals.

2. Couplings shall be tight to the duct wall surface, and projections into the duct at connections shall be minimized.

3. The inside surface of all duct shall always be constructed of sheet metal.

D. Only fittings with verifiable loss coefficients and performance data developed from actual laboratory testing will be acceptable. Performance data on fittings must be furnished upon request.

E. System Performance:

1. The system has been designed for optimum performance. Any subsequent alterations to the design must be accompanied by a computer analysis or hand calculations showing that the proposed alterations will still provide the original design volume without increasing the system total pressure.

2. Any unavoidable field changes to the original design (offsets, etc.) must be reported to the architect so that accurate “as built” operating parameters may be established.

-END OF SECTION-

SECTION 15981- TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide all labor, equipment and instrumentation necessary to perform the testing, adjusting and balancing (TAB) of heating, ventilating and air conditioning (HVAC) systems which shall include, but not be limited to:

1. Supply air systems
2. Return air systems (including plenum returns)
3. Exhaust air systems
4. Outside air
5. Mixed air
6. Adjustment of controls and equipment as required for proper operation of systems
7. Adjust all systems to maintain building pressure design

1.02 REFERENCES

A. Associated Air Balance Council (AABC)

B. National Environmental Balancing Bureau (NEBB)

C. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

D. Sheet Metal and Air Conditioning Contractor's Association (SMACNA)

1.03 THE TAB AGENDA

A. The TAB Agenda Contractor shall prepare a TAB agenda for review and approval by the Engineer. The TAB Agenda shall be provided during the submittal process. The TAB Contractor shall not commence work until the TAB Agenda has been approved by the Engineer.

B. The Agenda shall include the following detailed narrative procedures, system diagrams and forms for test results.

1. Specific standard procedures required and proposed for each system. Additional procedures for variable flow systems shall be developed by the TAB Contractor and included for review and approval.
2. Specific test forms for recording each TAB procedure and additional test forms

for any variable flow systems shall be developed by the TAB Contractor and submitted for review and approval.

3. System diagrams for each air and water system. Diagrams may be single line. In addition to the information recorded for standard AABC or NEBB procedures, report the following information:

   a. Package AC units: Prepare profile and show design and actual CFM (outside air, return air, supply air). Record pressure drops of all components (coils, filters, louvers, dampers, fans) and compare with design values. Pressure profile and component pressure drops are performance indicators and are not to be used for flow measurements. Record temperatures of outside air, return air, mixed air and supply air.

   b. Duct distribution systems: Prepare pressure profiles from the air handling units to the extremities of the system. As a minimum, show pressures at each floor and, main branch. Make pitot tube traverses of all trunk lines and major branch lines where required for analysis of distribution system. Record residual pressures at inlet of volume controlled terminals at ends of system. Show actual pressures at all static pressure control points utilized for constant or variable flow systems.

1.04 SUBMITTALS

A. The TAB Contractor shall submit the following items prior to commencing work. All submittals shall be bound in a binder complete with cover sheet, index, and tabs separating specific sections of the submittal.

   1. The TAB agenda as detailed in paragraph 1.03-A

   2. Warranty information

   3. TAB Contractor qualifications including TAB Engineer and company experience on similar projects

   4. Submit project supervisor and qualifications

   5. Submit TAB equipment and last date of calibration

B. After completion of all TAB procedures and before warranty period commences, submit complete test reports as provided for by the prior approved TAB agenda, for Engineer review and approval. Where test results differ from specified design conditions, indicating a contract deficiency, include explanatory comments and possible resolutions in the report. After review by the Engineer, the TAB Contractor shall make any adjustments deemed necessary by the Engineer.

C. Final report shall be submitted for acceptance and record. Submit six (6) copies of final reports.

1.05 WARRANTY

A. For a period of one year after acceptance by the Owner, the TAB Contractor shall, at the request of the Engineer, return to the project to retest and/or rebalance any problem areas. This shall be done within ten (10) working days at no additional expense to the Owner or the Engineer. The purpose of this is to correct a problem, not to retest/rebalance revisions made by the Owner.

B. During the first year after acceptance by the Owner, the TAB Contractor shall return to the project during the peak heating and cooling seasons to rebalance the applicable hydronic systems to maintain the required discharge air and water temperatures. The T&B report shall be amended to reflect the results.

PART 2 - EQUIPMENT (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 GENERAL

A. The TAB Contractor shall review and become thoroughly familiar with the job site when the erection of the building is in the early stages. An additional visit shall be made when the rough-in is complete. Prior to any closing in of ductwork and piping, verify that all fittings, dampers, control devices and test devices are properly located and installed.

B. The TAB Contractor shall examine each air distribution system to verify that it is free from obstructions. The TAB Contractor shall determine that all dampers and registers are in a set or full open position; that moving equipment is lubricated; and that the required filters are clean and functioning. The TAB Contractor shall request that the installing contractor perform air adjustments necessary for proper functioning of the system.

C. The TAB Contractor shall use test instruments that have been calibrated within a time period recommended by the manufacturer (no more than 6 months) and have been checked for accuracy prior of the start of the testing, adjusting and balancing.

D. The TAB Contractor shall verify that all equipment performs as designed and specified. The TAB Contractor shall adjust all variable type drives, volume dampers, control dampers, etc., as required by the TAB work.

E. Coordinate TAB procedures with all construction requirements for the project so that usable increments of finished work may be accepted for beneficial occupancy. Systems serving partially occupied phases of the project may require balancing for each phase prior to final balancing.

F. Allow sufficient time in construction schedule for TAB prior to final inspection for the project.

G. Conduct final TAB after system has been completed and is in full working order. Put all HVAC systems into full operation and continue operation of the systems during each working day of TAB. Accomplish TAB in accordance with the Agenda approved by the Engineer.

3.02 AIR BALANCE

A. Place all interactive systems in operation with all filters installed and automatic control systems completed and operating. Artificially load air filters by partial blanking or other means to produce air pressure drop midway between the clean and dirty condition. Set/reset room thermostats as necessary to check heating and cooling function, and maximum/minimum flow rates for factory set air terminal units and adjust units if not correct.

B. Balance systems to design ratings. Adjust fan speeds to provide design flows, including system diversities, at actual system pressures. Provide additional sheaves and belts as required to achieve design CFM.

C. Make pilot tube traverses of all trunk lines and major branches when required to determine proper proportioning of air flows.

D. Record pressure drop readings across all major system components and significant drops within duct systems.

E. Adjust air systems with doors leading outside closed. Balance individual rooms simulating occupied conditions. (Windows and doors closed, etc.)

F. Log air flows for occupied and unoccupied conditions.

G. Make flow and pressure measurements at each terminal device, and each supply, return, or exhaust diffuser. Adjust each air outlet unit within plus or minus 10 percent of design requirements, but total air for each system shall be not less than shown. Adjust grilles and diffusers to minimize drafts in all areas. Maintain the building pressure relationships between different zones.

H. Adjust outside air and return air quantities for all systems to within plus or minus 10 percent. Total supply air quantity for any system shall be not less than shown.

I. Adjust exhaust systems to CFM requirements.

J. Test function of automatic dampers and operation of air terminal units. Check all controls for proper operation.

- END OF SECTION -

SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Basic Electrical Requirements specifically applicable to Division 16 Sections, in addition to Division 1 - General Requirements.

1.02 QUALIFICATIONS OF ELECTRICAL CONTRACTOR

A. The Electrical Contractor shall have as his primary business electrical contracting and shall have completed at least three projects of the same size and scope within the past five years. The owner reserves the right to reject the bid of any contractor not meeting the above requirements.

1.03 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.
B. NFPA 101 - Life Safety Code.

1.04 SCOPE OF WORK

A. The work consists of, but is not limited to, the following:
1. General wiring of power and lighting circuits.
2. Installation of all panelboards, fixtures, devices, etc.
3. Coordination with local Utility Company for Service as indicated.
4. Coordination with local Telephone Company for service to the building.

1.05 SUBMITTALS

A. Submit under provisions of Section 01300.
B. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal. Each submittal shall be accompanied by a cover sheet listing the contents of the submittal and a space for the Engineer's review stamp.
C. Mark dimensions and values in units to match those specified.

1.06 SUBSTITUTIONS

A. Where three (3) or more manufacturers and part numbers are specified then no substitutions will be considered.
B. Where the term "approved equal" appears then substitutions of equal quality, workmanship etc. will be considered. Provide engineer with a cut sheet with appropriate data required to determine equality. This data must be received and approved prior to bidding.
C. Where the term "or equal" appears the substitution of equality, workmanship etc. will be allowed. This item will not require prior approval but must meet engineering approval prior to purchase.

1.07 REGULATORY REQUIREMENTS

A. Electrical: Conform to NFPA 70 and all local codes and ordinances.
B. Obtain permits, and request inspections from authority having jurisdiction.

1.08 COORDINATION OF THE WORK

A. Construct Work in sequence under provisions of Section 01010.
B. The contractor shall coordinate all work with other trades. It is the **contractor's** responsibility to coordinate with shop drawings of other trades prior to rough in to determine voltage, wattage, connection required, etc. Conflicts between drawings and shop drawings of other trades shall be brought to the attention of the engineer for immediate action.

1.09 ELECTRICAL CONNECTIONS TO EQUIPMENT SPECIFIED UNDER OTHER SECTIONS

A. Heating and Cooling Units
   1. Provide disconnect sized for FLA of equipment
   2. Provide flexible connection to Unit
   3. Provide power connection to Unit. All other internal connections by Mechanical

B. Exhaust fans
   1. Provide power connection to all exhaust fans. Disconnects for roof mounted units provided by Mechanical unless specified otherwise.
   2. Provide flexible connection to all vibrating equipment.
   3. Provide disconnect sized for HP of fan for wall mounted units. Starters furnished by Mechanical unless noted otherwise. Control of fans by Mechanical.

C. Plumbing
   1. Water Heaters, provide disconnect sized for the amperage of the heating element.
   2. Provide power and disconnect to all pumps. Starters and controls by Mechanical.

1.10 DOCUMENTS

A. Refer to all project's drawings, including Architectural, Electrical, Mechanical, Structural and project specifications.
B. The drawings indicate the relation of wiring and connections and must not be scaled for exact locations.
C. Verify construction dimensions at the project and make changes necessary to conform to the building as constructed. Work improperly installed due to lack of construction verification shall be corrected at the contractor's expense.

1.11 FINAL REVIEW

A. At the time of final review of electrical work, demonstrate the operation of electrical systems. Furnish labor, apparatus and equipment required for the demonstration.

END OF SECTION

SECTIION 16111 - CONDUIT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal conduit.
B. Electrical metallic tubing.
C. Nonmetal conduit.
D. Flexible metal conduit.
E. Fittings and conduit bodies.

1.02 RELATED SECTIONS

A. Section 16130 - Boxes.
B. Section 16170 - Grounding and Bonding.
C. Section 16195 - Electrical Identification.

1.03 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.
B. Verify routing and termination locations of conduit prior to rough-in.
C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

PART 2 PRODUCTS

2.01 RIGID STEEL OR INTERMEDIATE METAL CONDUIT (IMC)

A. Manufacturers:
   1. Wheatland.
   2. Triangle.
   3. Republic.
   4. Approved Equal.
B. Fittings and Conduit Bodies:
   1.Fittings and conduit bodies shall conform to ANSI/NEMA FB 1
   2.Material to match conduit.
C. Uses Permitted
   1. Rigid steel and IMC may be used under all conditions unless specifically stated otherwise
   2. Where used in slabs and below grade paint with 2 coats of asphalt-based paint prior to covering.
   3. Minimum size 3/4”

2.02 ELECTRICAL METALLIC TUBING (EMT)

A. Manufacturers:
   1. Triangle.
   2. Republic.
   3. Allied.
B. Fittings and Conduit Bodies:
   1.Fittings shall conform to ANSI/NEMA FB 1
   2.Fittings shall be steel set screw type. (**CAST FITTINGS NOT ALLOWED**)

C. Uses Permitted

1. Interior dry locations where concealed in walls or above ceilings.
2. Interior dry locations where exposed above 6 feet above finished floor and not exposed to mechanical injury
3. Minimum size 1/2”

2.03 NONMETALLIC CONDUIT

A. Manufacturers:
1. Carlon.
2. Sebco.
3. Can-Tex.
4. Approved Equal.

B. Fittings and Conduit Bodies
1. Fittings shall conform to NEMA TC 3.
2. 90’s 1” and larger shall be Rigid Steel

C. Uses Permitted
1. In slabs and below grade
2. Where turned up into a wall, conduit may extend to first outlet box or 18” whichever is least.
3. Minimum size 3/4”

2.04 FLEXIBLE METAL CONDUIT

A. Manufacturers:
1. Alflex.
2. American Flexible.
3. Approved Equal.

B. Fittings
1. Fittings shall conform to ANSI/NEMA FB 1.
2. Fittings shall be steel

C. Uses Permitted:
1. Fixture drops and connection to vibrating equipment
2. Connections to vibrating equipment where exposed to moisture shall be waterproof

PART 3 EXECUTION

3.01 INSTALLATION

A. Install conduit in accordance with NECA "Standard of Installation."
B. Install nonmetallic conduit in accordance with manufacturer's instructions. Provide a code size grounding conductor in all non-metallic conduit.
C. Arrange supports to prevent misalignment during wiring installation.
D. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
E. Group related conduits; support using conduit rack. Construct rack using steel channel ; provide space on each for 25 percent additional conduits.
F. Fasten conduit supports to building structure and surfaces
G. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports
H. Do not attach conduit to ceiling support wires.
I. Arrange conduit to maintain headroom and present neat appearance.
J. Route exposed conduit parallel and perpendicular to walls.
K. Route conduit installed above accessible ceilings parallel and perpendicular to walls.
L. Route conduit in and under slab from point-to-point.

M. Maintain adequate clearance between conduit and piping.
N. Maintain 12-inch clearance between conduit and surfaces with temperatures exceeding 104 degrees
P. Cut conduit square using saw or pipecutter; de-burr cut ends.
Q. Bring conduit to shoulder of fittings; fasten securely.
R. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, minimum.
S. Nonmetallic conduit field bends shall be made using a "HOT BOX" bender. Bends made with a torch shall be removed.
T. Use conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes in damp and wet locations.
U. Install no more than equivalent of three 90-degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in conduit larger than 2-inch size.
V. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
W. Provide suitable fittings to accommodate expansion and deflection where conduit crosses, control, and expansion joints.
X. Provide suitable pull string in each empty conduit except sleeves and nipples.
Y. Ground and bond conduit under provisions of Section 16170.
Z. Identify conduit under provisions of Section 16195.

3.02 INTERFACE WITH OTHER PRODUCTS

A. Install conduit to preserve fire resistance rating of partitions and other elements. Fire Wall Penetrations shall be made in accordance with a U.L. listed assembly. **CONDUIT PENETRATION THROUGH FIRE WALLS TO BE CORE DRILLED.**
B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation.

END OF SECTION 16111

SECTION 16123 - BUILDING WIRE AND CABLE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Building wire and cable.
B. Wiring connectors and connections.

1.02 RELATED SECTIONS

A. Section 16111 - Conduit.
B. Section 16130 - Boxes.
C. Section 16195 - Identification.

1.03 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.04 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.
B. Conductor sizes are based on copper unless indicated as aluminum or "AL".
C. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions
D. Where wire and cable routing are not shown, and destination only is indicated, determine exact routing and lengths required.
E. Install wire in conduit as shown on the drawings. Combining runs of wire shall be permitted only where the contractor has de-rated the ampacity of the wire per the National Electrical Code.

Example:

- 10ea. current carrying conductors in 3/4” conduit
- Circuit rating of 15 amps. per conductor
- Per Article 220-3 min. circuit rating =15 X 1.25 = 18.75 amps.
- Per Table 310-16 note 8 conductors must be de-rated 50% for 10 conductors in one conduit
- 18.75 amps / 50% = 37 amps. (Minimum current rating of conductor)
- Per table 310-16 conductor must be #8

PART 2 PRODUCTS

2.01 COPPER BUILDING WIRE

A. Description: Single conductor insulated wire.
B. Conductor: Copper.
C. Insulation Voltage Rating: 600 volts.
D. Insulation: ANSI/NFPA 70, Type RHW, THHN/THWN, XHHW.
E. Conductors #10 AWG and smaller may be solid, #8 and larger conductors to be stranded

2.02 ALUMINUM BUILDING WIRE

A. Description: Single conductor insulated wire.

B. Conductor: Aluminum.
C. Insulation Voltage Rating: 600 volts.
D. 250 mcm and larger (only where indicated on the drawings)
E. Terminate with compression fittings, mechanical connections not allowed

2.03 MC CABLE

A. Description: Type MC Metal Clad cable assembly
B. Conductor: Copper.
C. Insulation Voltage Rating: 600 volts.
D. Insulation: ANSI/NFPA 70, Type RHW, THHN/THWN, XHHW.
E. Conductors #12 AWG & #10 AWG (only where indicated on the drawings)

2.03 TRAY CABLE

A. Description: Type TC Multi-conductor Cable with a PVC overall shield
B. Conductor: Copper.
C. Insulation Voltage Rating: 600 volts.
D. Insulation: ANSI/NFPA 70, Type RHW, THHN/THWN, XHHW.
E. Color Code: Method 1 Table E-1

2.04 COLOR CODE

PHASE	208Y120 VOLT	480Y277 VOLT
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
NEUTRAL	WHITE	WHITE
GROUND	GREEN	GREEN

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturers instructions.
B. Use solid or stranded conductor for feeders and branch circuits 12 AWG and smaller, stranded conductors 10 AWG and larger.
C. Use conductor not smaller than 12 AWG for power and lighting circuits.
D. Pull all conductors into raceway at same time.
E. Use suitable wire pulling lubricant for building wire 4 AWG and larger.
F. Neatly train and lace wiring inside boxes, equipment, and panelboards.
G. Clean conductor surfaces before installing lugs and connectors.
H. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
I. Use split bolt connectors for copper conductor splices and taps, 8 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.
J. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 10 AWG and smaller.

K. Type MC cable to be run parallel or perpendicular to framing and bundled in a neat manner.
L. Aluminum conductors to be terminated using compression fittings only (mechanical connections not allowed)

3.02 INTERFACE WITH OTHER PRODUCTS

A. Identify wire and cable under provisions of Section 16195.
B. Identify each conductor with its circuit number or other designation indicated on Drawings.

SECTION 16130 - BOXES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall and ceiling outlet boxes.
B. Floor boxes.
C. Pull and junction boxes.

1.02 RELATED SECTIONS

A. Section 16141 - Wiring Devices: Floor box service fittings, access floor boxes , fire-rated poke-through fittings and mounting heights of wiring device outlets.

1.03 PROJECT CONDITIONS

A. Verify field measurements are as shown on Drawings.
B. Verify locations of floor boxes and outlets in finished areas prior to rough-in.
C. Electrical boxes are shown on Drawings in approximate locations unless dimensioned. Install at location required for box to serve intended purpose. [Include installation within 10 feet of location shown.]

PART 2 PRODUCTS

2.01 OUTLET BOXES

A. Sheet Metal Outlet Boxes: 4" sq. with plaster ring, galvanized steel.
   1. Luminaire and Equipment Supporting Ceiling Boxes: Rated for weight of equipment supported; include 1/2-inch male fixture studs where required.
   2. Flush mounted wall devices, coordinate depth of plaster ring with wall materials.
   3. Use gang boxes where required; Sectional boxes are not acceptable.
B. Masonry Boxes
   1. Flush mounted wall devices. Use gang boxes where required, Sectional boxes are not acceptable.
C. Cast Boxes: Cast Boxes: NEMA FB 1, Type FD, aluminum or cast ferroalloy. Provide gasketed cover by box manufacturer. Provide threaded hubs.
   1. Surface mounted boxes interior or exterior. Use where exposed conduit shown on the drawings.

2.02 FLOOR BOXES

A. Floor Boxes: ANSI/NEMA OS 1, semi- adjustable.
B. Material: Formed steel.
C. Shape: Rectangular.
D. Conform to regulatory requirements for concrete-tight floor boxes.

E. Floor boxes shall be equal to Hubbell 3SFBSS. Mount flush with finished floor and coordinate with floor covering installer to provide floor covering on top of box. Coordinate with owner for telephone and computer connections required.
F. Unfinished areas and gym floors: Equal to Hubbell #B-4314 with flush cover.

2.03 PULL AND JUNCTION BOXES

A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
B. Surface-Mounted Cast Metal Box: NEMA 250, Type 4; flat-flanged, surface-mounted junction box.
   1. Material: Cast aluminum.
   2. Cover: Furnish with ground flange, neoprene gasket, and stainless-steel cover screws.
C. In-Ground Cast Metal Box: NEMA 250, Type 6, outside flanged, recessed cover box for flush mounting.
   1. Material: Cast aluminum.
   2. Cover: Smooth cover with neoprene gasket and stainless-steel cover screws.
   3. Cover Legend: ELECTRIC.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.
B. Install electrical boxes to maintain headroom and to present neat mechanical appearance.
C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
D. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.
E. Install boxes to preserve fire resistance rating of partitions and other elements, using materials and methods approved by U.L.
F. Align adjacent wall-mounted outlet boxes for switches, thermostats, and similar devices with each other.
G. Use flush mounting outlet boxes in finished areas.
H. Do not install flush mounting boxes back-to-back in walls; provide minimum 6-inch separation. Provide minimum 24 inches separation in acoustic rated walls.
I. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.
J. Use stamped steel bridges to fasten flush mounting outlet box between studs.
K. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
L. Use adjustable steel channel fasteners for hung ceiling outlet box.
M. Do not fasten boxes to ceiling support wires.
N. Support boxes independently of conduit, except cast box that is connected to two rigid metal conduits both supported within 12 inches of box.
O. Use gang box where more than one device is mounted together. Do not use sectional box.
P. Use gang box with plaster ring for single device outlets.
Q. Use cast outlet box in exterior locations exposed to the weather and wet locations.
R. Set floor boxes level.
S. Large Pull Boxes: Boxes larger than 100 cubic inches in volume or 12 inches in any dimension.
   1. Interior Dry Locations: Use hinged enclosure.
   2. Other Locations: Use surface-mounted cast metal box.

3.02 INTERFACE WITH OTHER PRODUCTS

A. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.
B. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.
C. Position outlet boxes to locate luminaries as shown on reflected ceiling plan.

3.03 ADJUSTING

A. Adjust floor box flush with finish flooring material.
B. Adjust flush-mounting outlets to make front flush with finished wall material.
C. Install knockout closure in unused box opening.

3.04 LABELING

A. Label all junction box covers with circuit numbers and panel designation. Markings shall be made with black permanent marker on outside of cover. If box is not concealed by suspended ceiling or located in a room such as a mechanical or electrical room, the marking shall be on the inside of the cover.

B. Fire Alarm Junction boxes: all covers shall be painted red, where boxes are concealed above suspended ceilings or in mechanical and electrical rooms, so that the boxes can be easily identified.

END OF SECTION 16130

SECTION 16141 - WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall switches.
B. Wall dimmers.
C. Receptacles.
D. Device plates and decorative box covers.

1.02 RELATED SECTIONS

A. Section 16130 - Boxes.

1.03 REFERENCES

A. NEMA WD 1 - General Purpose Wiring Devices.

1.04 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.
B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2 PRODUCTS

2.01 WALL SWITCHES

A. Manufacturers:
   1. Hubbell.
   2. Leviton.
   3. Pass and Seymour.
   4. Bryant
B. Description: NEMA WD 1, general-duty, AC only general-use snap switch. Equal to Hubbell 1221 Series
C. Device Body: Ivory plastic with toggle handle.
D. Indicator Light: Lighted handle type switch; red handle.
E. Voltage Rating: 120-277 volts, AC.
F. Current Rating: 20 amperes.

2.02 WALL DIMMERS

A. Description: NEMA WD 1, semiconductor dimmer for incandescent lamps, type as indicated on Drawings.
B. Device Body: Ivory plastic with linear slide.
C. Voltage: 120 volts.
D. Power Rating: 2000 Watts. unless indicated otherwise
E. Manufacturers:
   1. Prescolite: Model P20.
   2. Lightolier: Model M2000.

2.03 RECEPTACLES

A. Manufacturers:
   1. Hubbell.
   2. Leviton.
   3. Pass & Seymour.
   4. Bryant
B. Description: NEMA WD 1; heavy-duty general-use receptacle.
C. Device Body: Ivory plastic.
D. Configuration: NEMA WD 6; type as specified and indicated.
E. Single Receptacle, 20 Amp. 125 Volt
   NEMA 5-20R - Equal to Hubbell 5361I
   Coordinate mounting with equipment being served. Mount directly under water coolers.
F. Convenience Duplex Receptacle, 15 Amp. 125 Volt:
   NEMA 5-15R - Equal to Hubbell 5262I
G. Quadraplex Receptacle, 15 Amp. 125 Volt
   NEMA 5-15R - Equal to Bryant 1254-I
H. GFCI Receptacle: Convenience receptacle with integral ground fault circuit interrupter to meet regulatory requirements. Equal to Hubbell GF5262I
I. Single Receptacle, 30 Amp. 250 Volt
   NEMA 6-30R - Equal to Hubbell 9330
   Coordinate configuration with equipment being served.
J. Single Receptacle, 50 Amp. 250 Volt
   NEMA 6-50R - Equal to Hubbell 9360
   Coordinate configuration with equipment being served.

2.04 WALL PLATES

A. Decorative Cover Plate: 302/304 Stainless Steel.
B. Weatherproof Cover Plate: Gasketed cast metal with hinged gasketed device cover.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify outlet boxes are installed at proper height.
B. Verify wall openings are neatly cut and will be completely covered by wall plates.
C. Verify floor boxes are adjusted properly.
D. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.
B. Clean debris from outlet boxes.

3.03 INSTALLATION

A. Install products in accordance with manufacturer's instructions.
B. Install devices plumb and level.

C. Install switches with OFF position down.
D. Install wall dimmers to achieve full rating specified and indicated after derating for ganging as instructed by manufacturer.
E. Do not share neutral conductor on load side of dimmers.
F. Install receptacles with grounding pole on bottom.
G. Connect wiring device grounding terminal to outlet box with bonding jumper.
H. Install decorative plates on switch, receptacle, and blank outlets in finished areas.
I. Connect wiring devices by wrapping conductor around screw terminal.
J. Use jumbo size plates for outlets installed in masonry walls.
K. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.
L. Install protective rings on active flush cover service fittings.

3.04 INTERFACE WITH OTHER PRODUCTS

A. Coordinate locations of outlet boxes provided under Section 16130 to obtain mounting heights specified and indicated on Drawings.
B. Install wall switch 48 inches above finished floor.
C. Install convenience receptacle 18 inches above finished floor.
D. Install convenience receptacle 2 inches above backsplash of counter.
E. Install dimmer 48 inches above finished floor.
F. Install telephone jack 18 inches above finished floor.
G. Install telephone jack for wall telephone 54 inches above finished floor.

3.05 FIELD QUALITY CONTROL

A. Inspect each wiring device for defects.
B. Operate each wall switch with circuit energized and verify proper operation.
C. Verify that each receptacle device is energized.
D. Test each receptacle device for proper polarity.
E. Test each GFCI receptacle device for proper operation.

END OF SECTION 16141

SECTION 16170 - GROUNDING AND BONDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Grounding electrodes and conductors.
B. Equipment grounding conductors.
C. Bonding.

1.02 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.03 GROUNDING ELECTRODE SYSTEM

A. Existing Metal underground water pipe.
B. Metal frame of the building.
C. Rod electrode.

1.04 PERFORMANCE REQUIREMENTS

A. Grounding System Resistance: 25 ohms.

1.05 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.
B. Furnish products listed and classified by underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2 PRODUCTS

2.01 ROD ELECTRODE

A. Material: Copper-clad steel.
B. Diameter: 5/8 inch.
C. Length: 8 feet

2.02 MECHANICAL CONNECTORS

A. U-bolt clamp equal to Thompson No. 493
B. Material: Bronze.

2.03 WIRE

A. Material: Stranded copper.
B. Foundation Electrodes: 2 AWG.
C. Grounding Electrode Conductor: Size to meet NFPA 70 requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that final backfill, and compaction has been completed before driving rod electrodes.

3.02 INSTALLATION

A. Install Products in accordance with manufacturer's instructions.
B. Provide additional rod electrodes as required to achieve specified resistance to ground.
C. Provide bonding to meet Regulatory Requirements.
D. Bond together metal siding not attached to grounded structure, bond to ground.
E. Provide isolated grounding conductor for circuits supplying computers.
F. Branch circuit grounding provided by metallic conduit. Provide code size grounding conductor in all nonmetallic raceways.

3.03 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.
B. Use suitable test instrument to measure resistance to ground of system. Perform testing in accordance with test instrument manufacturer's recommendations using the fall- of-potential method.

END OF SECTION 16170

SECTION 16195 - ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nameplates and labels.
B. Wire and cable markers.
C. Conduit markers.

1.02 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.03 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.
B. Furnish products listed and classified by Underwriters Laboratories, Inc.

PART 2 PRODUCTS

2.01 NAMEPLATES AND LABELS

A. Nameplates:
1. Engraved, three-layer laminated plastic, black letters on white background.
2. Indicate Panel Identification and Voltage rating

B. Locations:

1. Service Entrance Equipment
   Indicate voltage, main amps, and IAC rating
2. Distribution panels and panelboards
   Indicate voltage, main amps, and source of power
3. Equipment Disconnects
   Indicate equipment served, voltage and source of power

C. Letter Size:
1. Use 1/8-inch letters for identifying individual equipment and loads.

2.02 WIRE MARKERS

A. Description: Cloth, tape, split sleeve, or tubing type wire markers.
B. Locations: Each conductor at panelboard gutters, outlet and junction boxes, and each load connection.
C. Computer cables at each end of cable, indicate a) Building, b) room no. and c) outlet no.

2.03 LEGEND

A. Power and Lighting Circuits: Branch circuit or feeder number indicated on drawings.
B. Control Circuits: Control wire number indicated on schematic and interconnection diagrams on drawings.

2.04 UNDERGROUND WARNING TAPE

A. Description: 6-inch-wide Metallic tape, colored, yellow, with suitable warning legend describing buried electrical lines.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive nameplates and labels.

3.02 APPLICATION

A. Install nameplate parallel to equipment lines.
B. Secure nameplate to equipment front using screws or rivets.
C. Secure nameplate to inside surface of door on panelboard that is recessed in finished locations.
D. Identify underground conduits using underground warning tape. Install one tape per trench at 3 inches below finished grade.

END OF SECTION 16195

SECTION 16441 - DISCONNECT SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fusible switches.
B. Non-fusible switches.
C. Manual Disconnect Switches
D. Fuses.

1.02 REFERENCES

A. NEMA KS 1 - Enclosed Switches.
B. NFPA 70 - National Electrical Code.
C. UL 198C - High-Interrupting Capacity Fuses; Current Limiting Type.
D. UL 198E - Class R Fuses.

1.03 SUBMITTALS

A. Product Data: Provide switch ratings and enclosure dimensions.
B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with NECA Standard of Installation.

1.05 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.
B. Furnish products listed and classified by UL as suitable for purpose specified and shown.

1.06 EXTRA MATERIALS

A. Provide three of each size and type fuse installed.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Square "D".
B. Westinghouse.
C. General Electric.
D. Cutler Hammer.

2.02 DISCONNECT SWITCHES

A. Fusible Switch Assemblies: NEMA KS 1, Type HD load interrupter enclosed knife switch with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Fuse clips: Designed to accommodate Class R fuses.
B. Non fusible Switch Assemblies: NEMA KS 1, Type HD load interrupter enclosed knife switch with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position.
C. Manual Toggle Disconnects: Equal to Square "D" class 2510.
D. Enclosures: NEMA KS 1.
   1. Interior Dry Locations: Type 1.
   2. Exterior Locations: Type 3R.

2.03 FUSES

A. Description: Dual element, current limiting, time delay, one-time fuse, 250 or 600 volt, UL 198E, Class RK 5.
B. Interrupting Rating: 200,000 rms amperes.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install disconnect switches where indicated.
B. Install fuses in fusible disconnect switches.
C. Provide adhesive label on inside door of each switch indicating UL fuse class and size for replacement.

END OF SECTION 16441

SECTION 16510 - LUMINAIRES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. LUMINARIES and accessories.

B. Emergency lighting units.

C. Exit signs.

D. Ballasts.

E. Lamps.

F. Luminaries accessories.

1.02 RELATED SECTIONS

A. Section 16130 - Boxes.

1.03 SUBMITTALS

A. Submit under provisions of Section 16010.

B. Shop Drawings: Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.

C. Product Data: Provide dimensions, ratings, and performance data.

D. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements.

E. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.04 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Conform to requirements of NFPA 101.

C. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment shall be in accordance with CEC, UL, ANSI, and as shown on the drawings and specified.

2.2 LIGHTING FIXTURES (LUMINAIRES)

A. Shall be in accordance with NFPA 70, UL 1598 and shall be as shown on drawings and as specified.

B. Sheet Metal:

1. Shall be formed to prevent warping and sagging. Housing, trim and lens frame shall be true, straight (unless intentionally curved) and parallel to each other as designed.
2. Wireways and fittings shall be free of burrs and sharp edges and shall accommodate internal and branch circuit wiring without damage to the wiring.
3. When installed, any exposed fixture housing surface, trim frame, door frame and lens frame shall be free of light leaks; lens doors shall close in a light tight manner.
    a. Hinged door closure frames shall operate smoothly without binding when the fixture is in the installed position, and latches shall function easily by finger action without the use of tools.

C. Ballasts shall be serviceable while the fixture is in its normally installed position and shall not be mounted to removable reflectors or wireway covers.

D. Recessed fixtures shall be of the type approved for the ceiling and insulation conditions and appropriate for the installation location. Insulation must be held back from the fixture to provide manufacturers' recommended clearances for proper operation. Thermal tripping shall be the installer's responsibility to correct. Where installed in fire rated ceilings, coordinate installation of fire rated enclosures around the ceiling penetrations. Fixtures shall contain the proper through wiring capacity for that which is shown on the plans.

E. Recessed fixtures shall be provided with the appropriate trims and hardware compatible with the ceiling type shown. Plaster frames are required where plaster or gypsum board ceilings are encountered.

F. Fixtures with louvers or light transmitting panels shall have hinges, latches, and safety catches to facilitate safe, convenient cleaning and re-lamping. Vapor tight fixtures shall have pressure clamping devices in lieu of the latches.

G. Mechanical Safety: Lighting fixture closures (lens doors, trim frame, hinged housings, etc.) shall be retained in a secure manner by captive screws, chains, captive hinges, or fasteners such that they cannot be accidentally dislodged during normal operation or routine maintenance.

H. Metal Finishes:

1. The manufacturer shall apply standard finish (unless otherwise specified) over a corrosion resistant primer, after cleaning to free the metal surfaces of rust, grease, dirt, and other deposits. Edges of pre-finished sheet metal exposed during forming, stamping, or shearing processes shall be finished in a similar corrosion resistant manner to match the adjacent surface(s). Fixture finish shall be free of stains or evidence of rusting, blistering, or flaking.
2. Interior light reflecting finishes shall be white with not less than 85 percent reflectances, except where otherwise specified on the drawing.
3. Exterior finishes shall be as shown on the drawings.

I. Provide all lighting fixtures with a specific means for grounding metallic wireways and housings to an equipment grounding conductor.

J. Light Transmitting Components for Fluorescent Fixtures:
1. Shall be 100 percent virgin acrylic plastic or water white, annealed, crystal glass.
2. Flat lens panels shall have not less than 1/8 inch of average thickness. The average thickness shall be determined by adding the maximum thickness to the minimum unpenetrated thickness and dividing the sum by 2.
3. Unless otherwise specified, lenses, diffusers and louvers shall be retained firmly in a metal frame by clips or clamping ring in such a manner as to allow expansion and contraction ofthe lens without distortion or cracking.

K. LED fixtures shall be manufactured specifically for LED lamps with ballasts or drivers integral to the fixture. Assemblies designed to retrofit fixtures are prohibited except when described in this fashion. Fixtures shall be designed for lamps as specified.

L. Provide wire lamp guard on all exposed lamp fixture/luminaires.

M. Provide fixtures with a U.L. listing for shower or shower rating above shower or tub areas.

2.3 LED LUMINAIRE REQUIREMENTS

A. General Requirements:
1. Luminaire shall have an external label per ANSI C136.15
2. Luminaire shall have an internal label per ANSI C136.22.
3. Luminaires shall start and operate in -20°C to +40°C ambient.
4. LED light source(s) and driver(s) shall be RoHS compliant.

2.4 EMERGENCY LAMP POWER SUPPLY

A. Self-contained battery-operated power supply for operating LED lamp or compact fluorescent lamp for a minimum output of 90 minutes.

B. The power supply shall be installed within the luminaire ballast compartment or wireway. Provide with test switch and charge indicator installed integral to the luminaire. The test switch and charge indictor may be installed in a remote ceiling mounted flush J-box for recessed downlights which cannot accept integral components.

C. Performance: Emergency operation lumen output shall be a minimum of 1100 lumens. Unless specifically noted otherwise on the associated electrical drawings.

D. Provide access hatches, for emergency battery backup ballasts, adjacent to recessed 6-inch or less diameter downlights installed in inaccessible ceilings.

E. Manufacturers: Bodine, Iota, or approved. Emergency lamp power supplies may be provided as factory installed by the luminaire manufacturer provided the product meets the above specification criteria.

2.5 LED DRIVER

A. Driver
   1. Rated case temperature shall be suitable for operation in the luminaire operating in the ambient temperatures as indicated.
   2. Shall accept the voltage or voltage range indicated and shall operate normally for input voltage fluctuations of plus or minus 10 percent. Consistent with NEMA SSL 1.
   3. Shall have a minimum Power Factor (PF) of 0.90 at full input power and across specified voltage range.

B. Electromagnetic interference
   1. Shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range.
   2. Shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.

C. The following shall be in accordance with corresponding sections of ANSI C136.37
   1. Wiring and grounding
   2. All internal components shall be assembled and pre-wired using modular electrical connections.
   3. Mounting provisions:

   4. Terminal blocks for incoming AC lines
   5. Latching and hinging
   6. Ingress protection

2.6 **LAMPS**

A. Provide lamps for all luminaires.

B. **LED LIGHT SOURCE**

1. Minimum Color Rendering Index (CRI): 60.
2. Correlated Color Temperature (CCT)
   a. CCT shall be as listed in Table 1 below:

Table 1. Allowable CCT

Manufacturer-Rated 79Nominal CCT (K) Values	Allowable LM-Chromaticity Measured CCT (K)
2700	2580 to 2870
3000	2870 to 3220
3500	3220 to 3710
4000	3710 to 4260
4500	4260 to 4746
5000	4745 to 5311
5700	5310 to 6020
6500	6020 to 7040

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrate and supporting grids for LUMINARIES.

B. Examine each luminaries to determine suitability for lamps specified.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install suspended LUMINARIES using pendants supported from swivel hangers. Provide pendant length required to suspend luminaries at indicated height.

C. Support LUMINARIES independent of ceiling framing.

D. Locate recessed ceiling LUMINARIES as indicated on reflected ceiling plan. **Support fixturesindependent of ceiling grid.**

E. Install surface mounted LUMINARIES and exit signs plumb and adjust to align with buildinglines and with each other. Secure to prohibit movement.

F. Exposed Grid Ceilings: Support surface mounted LUMINARIES on grid ceiling directly from building structure Provide auxiliary members spanning ceiling Ts to support surface mounted LUMINARIES Fasten surface mounted LUMINARIES to ceiling T using bolts, screws, rivets, orsuitable clips.

G. Install recessed LUMINARIES to permit removal from below.

H. Install recessed LUMINARIES using accessories and firestopping materials to meet regulatory requirements for fire rating. **See detail in drawings for construction of Tents for all recessedtroffers**.

I. Install clips to secure recessed grid-supported LUMINARIES in place.

J. Install wall mounted LUMINARIES, emergency lighting units and exit signs at height as indicatedon Drawings.

K. Install accessories furnished with each luminary.

L. Connect LUMINARIES, emergency lighting units and exit signs to branch circuit outlets providedunder Section 16130 using flexible conduit. Fixture taps shall comply with NEC Article 410.67 (max length 6').

M. Make wiring connections to branch circuit using building wire with insulation suitable fortemperature conditions within luminaries.

N. Bond products and metal accessories to branch circuit equipment grounding conductor.
P. Install specified lamps in each luminaries, emergency lighting unit and exit sign.

END OF SECTION 16510

SECTION 16722

FIRE ALARM AND SMOKE DETECTION SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire Alarm and smoke detection systems.

1.02 REFERENCES

A. NFPA 72 National Fire Alarm Code.
B. NFPA 101 - Life Safety Code.

1.03 REGULATORY REQUIREMENTS

A. System: UL Listed.
B. Conform to Requirements of NFPA 101.

1.04 SYSTEM DESCRIPTION

A. Fire Alarm System: NFPA 72; Automatic Fire Alarm System.
B. System Supervision: Provide electrically supervised system, with supervised alarm initiating and alarm signaling circuits. Occurrence of single ground or open condition in initiating or signaling circuit places circuit in Trouble Mode. Component or power supply failure places system in Trouble Mode.
C. Alarm sequence of operation: Actuation of manual fire alarm station or automatic initiating device causes system to enter Alarm, which includes the following operations....

1. Sound and display local fire alarm signaling devices with non-coded signal.
2. Transmit non-coded signal to municipal connection.
3. Indicate location of alarming device on fire alarm control panels 80-character LCD display (as well as the remote annunciator if shown on plans)
4. Transmit signal to building mechanical systems to initiate shutdown of fans and damper operation.
5. Transmit signal to release door hold-open devices.

D. Alarm Reset: Key- accessible Reset function resets alarm system if alarm initiating circuits have cleared. (This will be available at the Fire Alarm Control Panel and the Remote Annunciator if shown on the plans)
E. Trouble sequence of operation: System trouble, including grounding or circuit of supervised circuits, or power or system failure causes system to enter Trouble Mode, including the following operations....
1. Visual and audible trouble alarm at the Fire Alarm Control Panel. (And at the Remote Annunciator if shown on plans)
2. Manual Acknowledge function at Control Panel (and Remote Annunciator if applicable) silences audible trouble alarm; visual alarm is displayed until initiating trouble is cleared. Control Panel (and Remote Annunciator if applicable) to flash.
G. Analog Addressable Circuits: As scheduled on the plans.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in smoke detection and fire alarm systems with five years documented experience.

B. Installer: The Fire Alarm contractor shall be licensed by the Stae of Alabama as a "CERTIFIED FIRE ALARM CONTRACTOR" and have technicians with a current NICET Level III certification. A copy of the State Fire Marshal's Permit will be required at the Pre-Construction conference.

1.06 SUBMITTALS

A. Submit shop drawings and product data under provisions of section16010.
B. Provide wiring diagrams, data sheets, and equipment ratings, layout, dimensions, and finishes.
C. Submit copy of State Fire Marshal's Permit.

1.07 **OPERATION AND MAINTENANCE DATA**

A. Submit data under provisions of section 16010.
B. Include operating instructions, and maintenance and repair procedures.
C. Include manufacturer representative's letter stating that system is operational.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Simplex
B. Notifier
C. Edwards

2.02 FIRE ALARM AND SMOKE DETECTION CONTROL PANEL (FACP)

A. Control Panel: Modular construction with flush or surface wall-mounted enclosure as indicated on the drawings. The base panel shall be capable of handling a minimum of 127 Analog Addressable devices in any combination of smoke detectors, pull stations, duct mounted smoke detectors, or heat detectors. The panel shall be expandable to 508 Analog Addressable devices. The number of Addressable Circuits shall be as indicated on the drawings. The Panel shall be a Simplex 4020 series or approved equal.
B. Power Supply: Adequate to serve control panel modules, remote detectors, remote annunciators, door holders, relays, and alarm signaling devices. Include battery-operated emergency power supply with capacity for operating system in standby mode for twenty-four (24) hours, and five (5) minutes in alarm. Provide Transient voltage surge suppression on
C. Detection Circuits: Supervised Mapnet module with alarm and trouble indication. Each module will handle 127 addressable devices.
D. Signal Circuits: Supervised signal module, sufficient for signal devices connected to system.
E. Municipal Trip Circuit: Provide output connections to local municipal master fire alarm box. Owner to supply telephone line from panel to master fire alarm box. Provide Transient Voltage surge suppression on this circuit.

F. Auxiliary Relays: Provide sufficient SPDT auxiliary relay contacts for each detection zone to provide accessory functions specified.
G. Control panel shall provide Trouble Acknowledge, Alarm Silence, Lamp Test and System Reset Switches.

2.03 REMOTE ANNUNCIATOR (if shown on drawings)

A. Remote Annunciator Panel: Provide annunciator with 80 Character LCD Display. Plus, system trouble light and audible trouble indicator. Simplex 4603 Series or approved equal.

B. Provide Trouble Acknowledge, Alarm Silence, Lamp Test, and System Reset Switches.

2.04 INITIATING DEVICES

A. Manual Pull Stations: Flush mounted, single action type. Addressable Pull Station. Simplex 2099-9795 or approved equal.
B. Analog Addressable Heat Sensor: Combination rate-of-rise and fixed temperature, Alarm Threshold shall be selectable. The Rate of Rise Portion will be either 15 Degrees F. or 20 Degrees F. Per minute rate of temperature rise. The Fixed Temperature Portion Will be either 117 Degrees F. or 135 Degrees F. In addition, the Rate of Rise portion can be bypassed. The Heat Sensor will be interchangeable with the smoke sensor using the same base. Simplex 4098-9732 with 4098-9784 Base or approved equal.
C. Analog addressable Smoke Sensor: Photoelectric type. The smoke sensor base shall be the same as the Heat Sensor Above. Simplex 4098-9701 with 4098-9784 base or approved equal.
D. Analog addressable Duct Mounted Smoke Detector: Photoelectric type. The Duct Detector shall have a programmable relay built into the unit for AHU shutdown. This relay will be programmed and controlled from the fire alarm control panel utilizing the Mapnet Circuit to the duct detector. No additional wire will be required. Simplex 4098-9706 with all associated equipment including 2098-9806 remote test station and alarm LED or approved equal.
E. Door Holder: Semi-flush wall mounted. Simplex 2088-9585 or approved equal.

2.05 SIGNALING DEVICES

A. Audio/Visual Signal: Semi-flush mounting. The Visual appliance shall meet ADA requirements. The Audible device shall be a horn with an output rating of 87 db at ten (10) feet. Simplex 4903-9219 or approved equal.
B. Visual Only: Semi-flush mounting. Shall meet ADA requirements. Simplex 4904-9137 or approved equal.
C. Weatherproof horn: Semi-flush mounting horn with a weatherproof backbox. The output rating shall be 87 db at ten (10) feet. Simplex 4901-9805H with weatherproof backbox or approved equal.

2.06 **FIRE ALARM CABLE AND WIRE**

A. Shall be in accordance with NFPA and manufacturers recommendations. All power wiring shall be #14 awg minimum and installed in conduit.

PART 3 EXECUTION

3.01 **INSTALLATION**

A. Install system in accordance with manufacturers instructions.
B. Install manual station with operating handle 48 inches above floor. Install audible and visual devices 96 inches above floor.
C. Use 14 awg minimum size conductors for fire alarm detection and signal circuit conductors. Install wiring in conduit.

D. Mount end-of-line devices in box with last device or separate box adjacent to last device in circuit.
E. Paint all J-Boxes and covers located above accessible ceilings with red enamel.

END OF SECTION 16722

COM*check* Software Version COMcheckWeb
Mechanical Compliance Certificate

Project Information

Energy Code:	2015 IECC
Project Title:	Alabama A&M Animal Science
Location:	Huntsville, Alabama
Climate Zone:	3a
Project Type:	Alteration

Construction Site:
372-B Walker Lane
Meridianville, Alabama

Owner/Agent:

Designer/Contractor:

Mechanical Systems List

Quantity **System Type & Description**

1 HVAC System (Unknown w/ PerimeterSystem):
Heating: 3 each - Unit Heater, Electric, Capacity = 10236 kBtu/h
No minimum efficiency requirement applies

1 HVAC System (Unknown w/ PerimeterSystem):
Heating: 4 each - Unit Heater, Electric, Capacity = 10236 kBtu/h
No minimum efficiency requirement applies

1 HVAC System (Single Zone):
Single Package Heat Pump
Heating Mode: Capacity = 39000 kBtu/h,
Proposed Efficiency = 3.53 COP, Required Efficiency = 3.20 COP
Cooling Mode: Capacity = 35000 kBtu/h, , Air Economizer
Proposed Efficiency = 12.00 EER, Required Efficiency: 9.50 EER + 10.6 IEER

1 HVAC System (Single Zone):
Split System Heat Pump
Heating Mode: Capacity = 57980 kBtu/h,
Proposed Efficiency = 3.53 COP, Required Efficiency = 3.20 COP
Cooling Mode: Capacity = 52500 kBtu/h, , Air Economizer
Proposed Efficiency = 12.00 EER, Required Efficiency: 9.50 EER + 10.6 IEER

1 Water Heater:
Electric Storage Water Heater, Capacity: 50 gallons
Proposed Efficiency: 0.00 SL, %/h (if > 12 kW), Required Efficiency: 0.84 SL, %/h (if > 12 kW)

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2015 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Ronald Steadman Jr - Partner		10/18/2021
Name - Title	Signature	Date

COM*check* Software Version 4.1.5.3

Interior Lighting Compliance Certificate

Project Information

Energy Code:	90.1 (2013) Standard
Project Title:	Alabama A&M Sciences
Project Type:	New Construction

Construction Site:
372-B Walker Lane
Meridianville, AL

Owner/Agent:

Designer/Contractor:

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-School/University	5169	0.87	4497
		Total Allowed Watts =	4497

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-School/University				
LED 1: A: LED Linear 33W:	1	19	38	722
LED 2: B: LED Panel 33W:	1	11	29	319
LED 3: C: LED Panel 44W:	1	8	49	392
LED 4: D: LED A Lamp 9W:	1	35	10	350
LED 5: E: LED A Lamp 9W:	1	2	10	20
LED 6: LED Linear 17W:	1	1	18	18
			Total Proposed Watts =	1821

Interior Lighting PASSES: Design 60% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 90.1 (2013) Standard requirements in COM*check* Version 4.1.5.3 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Jason Ward - Electrical Designer		10-11-2021
Name - Title	Signature	Date