ANDERSON HOUSE HVAC PIPING

INSTALLATION
State Project Number: NA

April 10, 2015
Charleston, South Carolina

Construction Documents
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**PROJECT NUMBER:** NA

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INVITATION FOR CONSTRUCTION SERVICES

PROJECT NAME: ANDERSON HOUSE HVAC PIPING INSTALLATION
PROJECT NUMBER: NA
PROJECT LOCATION: Charleston, SC

BID SECURITY REQUIRED? Yes ☒ No ☐ NOTE: Contractor may be subject to a performance appraisal at the close of the project.
PERFORMANCE BOND REQUIRED? Yes ☒ No ☐
PAYMENT BOND REQUIRED? Yes ☒ No ☐ CONSTRUCTION COST RANGE: $75,000-$150,000

DESCRIPTION OF PROJECT: Scope of work is to install new chilled water and hot water piping to the Anderson House from the Quad Building at MUSC.

http://academicdepartments.musc.edu/vpfs/enandfs/construction_projects/index.html

PLAN DEPOSIT AMOUNT: $0.00 IS DEPOSIT REFUNDABLE Yes ☐ No ☐ N/A ☒

Bidders must obtain Bidding Documents/Plans from the above listed source(s) to be listed as an official plan holder. Only those Bidding Documents/Plans obtained from the above listed source(s) are official. Bidders that rely on copies of Bidding Documents/Plans obtained from any other source do so at their own risk. All written communications with official plan holders & bidders WILL ☐ WILL NOT ☐ be via email or website posting.

IN ADDITION TO THE ABOVE OFFICIAL SOURCE(S), BIDDING DOCUMENTS/PLANS ARE ALSO AVAILABLE AT:

All questions & correspondence concerning this Invitation shall be addressed to the A-E.

A-E NAME: ECHO Engineering LLC
A-E CONTACT: Michael Liddle, PE
A-E ADDRESS: Street/PO Box: 1514 Mathis Ferry Rd. Suite 215
City: Mt Pleasant
State: SC ZIP: 29464
EMAIL: Mike@echoengr.com
TELEPHONE: 843-647-3246 FAX: NA

AGENCY: Medical University of South Carolina (MUSC)
AGENCY PROJECT COORDINATOR: Alex Chung
ADDRESS: Street/PO Box: 97 Jonathan Lucas Street, MSC 190
City: Charleston
State: SC ZIP: 29425
EMAIL: chunga@musc.edu
TELEPHONE: (843) 792-4672 FAX: 843-792-0251

PRE-BID CONFERENCE: Yes ☒ No ☐ TIME: 1:30 pm
MANDATORY ATTENDANCE: Yes ☒ No ☐ PLACE: Eng. & Facilities - Rm PG209
BID CLOSING DATE: 6/3/2015 TIME: 1:00 pm
PLACE: Eng. & Facilities - Rm PG209

BID DELIVERY ADDRESSES:
HAND-DELIVERY:
Attn: Alex Chung
MUSC Engineering & Facilities
97 Jonathan Lucas Street Charleston, SC 29425
MAIL SERVICE:
Attn: Alex Chung
MUSC Engineering & Facilities
97 Jonathan Lucas Street MSC 190 Charleston, SC 29425

IS PROJECT WITHIN AGENCY CONSTRUCTION CERTIFICATION? (Agency MUST check one) Yes ☒ No ☐

APPROVED BY: [Signature] DATE: 5-11-2015
AIA Document A701-1997

(Instructions to Bidders)

Document may be viewed at A/E office
1. STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

1.1 These Standard Supplemental Instructions to Bidders amend or supplement Instructions to Bidders (AIA Document A701-1997) and other provisions of Bidding and Contract Documents as indicated below.

1.2 Compliance with these Standard Supplemental Instructions is required by the Office of State Engineer (OSE) for all State projects when competitive sealed bidding is used as the method of procurement.

1.3 All provisions of the A701-1997, which are not so amended or supplemented, remain in full force and effect.

1.4 Bidders are cautioned to carefully examine the Bidding and Contract Documents for additional instructions or requirements.

2. MODIFICATIONS TO A701-1997

2.1 Delete Section 1.1 and insert the following:

1.1 Bidding Documents, collectively referred to as the Invitation for Bids, include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement, Instructions to Bidders (A-701), Supplementary Instructions to Bidders, the bid form (SE-330), the Notice of Intent to Award (SE-370), and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda issued prior to execution of the Contract, and other documents set forth in the Bidding Documents. Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA A101, 2007 Edition as modified by OSE Form 00501 – Standard Modification to Agreement between Owner and Contractor. Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA A201, 2007 Edition as modified by OSE Form 00811 – Standard Supplementary Conditions.

2.2 In Section 1.8, delete the words “and who meets the requirements set forth in the Bidding Documents”.

2.3 In Section 2.1, delete the word “making” and substitute the word “submitting.”

2.4 In Section 2.1.1:

After the words “Bidding Documents,” delete the word “or” and substitute the word “and.”

Insert the following at the end of this section:

Bidders are expected to examine the Bidding Documents and Contract Documents thoroughly and should request an explanation of any ambiguities, discrepancies, errors, omissions, or conflicting statements. Failure to do so will be at the Bidder’s risk. Bidder assumes responsibility for any patent ambiguity that Bidder does not bring to the Owner’s attention prior to bid opening.

2.5 In Section 2.1.3, insert the following after the term “Contract Documents” and before the period:

and accepts full responsibility for any pre-bid existing conditions that would affect the Bid that could have been ascertained by a site visit. As provided in Regulation 19-445.2042(B), a bidder’s failure to attend an advertised pre-bid conference will not excuse its responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the State.

2.6 Insert the following Sections 2.2 through 2.6:

2.2 CERTIFICATION OF INDEPENDENT PRICE DETERMINATION

GIVING FALSE, MISLEADING, OR INCOMPLETE INFORMATION ON THIS CERTIFICATION MAY RENDER YOU SUBJECT TO PROSECUTION UNDER SECTION 16-9-10 OF THE SOUTH CAROLINA CODE OF LAWS AND OTHER APPLICABLE LAWS.
A. By submitting an bid, the bidder certifies that—
   1. The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to—
      a. Those prices;
      b. The intention to submit a bid; or
      c. The methods or factors used to calculate the prices offered.
   2. The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and
   3. No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

B. Each signature on the bid is considered to be a certification by the signatory that the signatory—
   1. Is the person in the bidder’s organization responsible for determining the prices being offered in this bid, and that the signatory has not participated and will not participate in any action contrary to paragraphs A.1 through A.3 of this certification; or
   2. a. Has been authorized, in writing, to act as agent for the bidder's principals in certifying that those principals have not participated, and will not participate in any action contrary to paragraphs A.1 through A.3 of this certification [As used in this subdivision B.2.a, the term "principals" means the person(s) in the bidder’s organization responsible for determining the prices offered in this bid];
      b. As an authorized agent, does certify that the principals referenced in subdivision B.2.a of this certification have not participated, and will not participate, in any action contrary to paragraphs A.1 through A.3 of this certification; and
      c. As an agent, has not personally participated, and will not participate, in any action contrary to paragraphs A.1 through A.3 of this certification.

C. If the bidder deletes or modifies paragraph (a)(2) of this certification, the bidder must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

2.3 DRUG FREE WORKPLACE
By submitting a bid, the Bidder certifies that Bidder will maintain a drug free workplace in accordance with the requirements of Title 44, Chapter 107 of South Carolina Code of Laws, as amended.

2.4 CERTIFICATION REGARDING DEBARMENT AND OTHER RESPONSIBILITY MATTERS
A. 1. By submitting an Bid, Bidder certifies, to the best of its knowledge and belief, that-
      a. Bidder and/or any of its Principals-
         (i) Are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any state or federal agency;
         (ii) Have not, within a three-year period preceding this bid, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of bids; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and
         (iii) Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph A.1.a.(ii) of this provision.
      b. Bidder has not, within a three-year period preceding this bid, had one or more contracts terminated for default by any public (Federal, state, or local) entity.
   2. "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).
B. Bidder shall provide immediate written notice to the Procurement Officer if, at any time prior to contract award, Bidder learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
C. If Bidder is unable to certify the representations stated in paragraphs A.1, Bidder must submit a written explanation regarding its inability to make the certification. The certification will be considered in connection with a review of the Bidder's responsibility. Failure of the Bidder to furnish additional information as requested by the Procurement Officer may render the Bidder nonresponsible.
Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph A. of this provision. The knowledge and information of a Bidder is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

D. The certification in paragraph A. of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Bidder knowingly or in bad faith rendered an erroneous certification, in addition to other remedies available to the State, the Procurement Officer may terminate the contract resulting from this solicitation for default.

2.5 ETHICS CERTIFICATE
By submitting a bid, the bidder certifies that the bidder has and will comply with, and has not, and will not, induce a person to violate Title 8, Chapter 13 of the South Carolina Code of Laws, as amended (ethics act). The following statutes require special attention: Section 8-13-700, regarding use of official position for financial gain; Section 8-13-705, regarding gifts to influence action of public official; Section 8-13-720, regarding offering money for advice or assistance of public official; Sections 8-13-755 and 8-13-760, regarding restrictions on employment by former public official; Section 8-13-775, prohibiting public official with economic interests from acting on contracts; Section 8-13-790, regarding recovery of kickbacks; Section 8-13-1150, regarding statements to be filed by consultants; and Section 8-13-1342, regarding restrictions on contributions by contractor to candidate who participated in awarding of contract. The state may rescind any contract and recover all amounts expended as a result of any action taken in violation of this provision. If contractor participates, directly or indirectly, in the evaluation or award of public contracts, including without limitation, change orders or task orders regarding a public contract, contractor shall, if required by law to file such a statement, provide the statement required by Section 8-13-1150 to the procurement officer at the same time the law requires the statement to be filed.

2.6 RESTRICTIONS APPLICABLE TO BIDDERS & GIFTS
Violation of these restrictions may result in disqualification of your bid, suspension or debarment, and may constitute a violation of the state Ethics Act. (a) After issuance of the solicitation, bidder agrees not to discuss this procurement activity in any way with the Owner or its employees, agents or officials. All communications must be solely with the Procurement Officer. This restriction may be lifted by express written permission from the Procurement Officer. This restriction expires once a contract has been formed. (b) Unless otherwise approved in writing by the Procurement Officer, bidder agrees not to give anything to the Owner, any affiliated organizations, or the employees, agents or officials of either, prior to award. (c) Bidder acknowledges that the policy of the State is that a governmental body should not accept or solicit a gift, directly or indirectly, from a donor if the governmental body has reason to believe the donor has or is seeking to obtain contractual or other business or financial relationships with the governmental body. Regulation 19-445.2165(C) broadly defines the term donor.

2.7 IRAN DIVESTMENT ACT CERTIFICATION
(a) The Iran Divestment Act List is a list published by the Board pursuant to Section 11-57-310 that identifies persons engaged in investment activities in Iran. The list is available at the following URL: http://procurement.sc.gov/PS/PS-iran-divestment.shtml. (b) Section 11-57-310 requires the government to provide a person ninety days written notice before he is included on the list. The following representation, which is required by Section 11-57-330(A), is a material inducement for the State to award a contract to you. (c) By signing your Offer, you certify that, as of the date you sign, you are not on the then-current version of the Iran Divestment Act List. (c) You must notify the Procurement Officer immediately if, at any time before posting of a final statement of award, you are added to the Iran Divestment Act List.

2.7 Delete Section 3.1.1 and substitute the following:

3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement in the number and for the deposit sum, if any, stated therein. If so provided in the Advertisement, the deposit will be refunded to all plan holders who return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded.

2.8 Delete the language of Section 3.1.2 and insert the word “Reserved.”

2.9 In Section 3.1.4, delete the words “and Architect may make” and substitute the words “has made.”

2.10 Insert the following Section 3.1.5

3.1.5 All persons obtaining Bidding Documents from the issuing office designated in the Advertisement shall provide that office with Bidder’s contact information to include the Bidder’s name, telephone number, mailing address, and email address.
2.11 In Section 3.2.2:
Delete the words “and Sub-bidders”
Delete the word “seven” and substitute the word “ten”

2.12 In Section 3.2.3:
In the first Sentence, insert the word “written” before the word “Addendum.”
Insert the following at the end of the section:
As provided in Regulation 19-445.2042(B), nothing stated at the pre-bid conference shall change the Bidding Documents unless a change is made by written Addendum.

2.13 Insert the following at the end of Section 3.3.1:
Reference in the Bidding Documents to a designated material, product, thing, or service by specific brand or trade name followed by the words “or equal” and “or approved equal” shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition.

2.14 Delete Section 3.3.2 and substitute the following:
3.3.2 No request to substitute materials, products, or equipment for materials, products, or equipment described in the Bidding Documents and no request for addition of a manufacturer or supplier to a list of approved manufacturers or suppliers in the Bidding Documents will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids established in the Invitation for Bids. Any subsequent extension of the date for receipt of Bids by addendum shall not extend the date for receipt of such requests unless the addendum so specifies. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

2.15 Delete Section 3.4.3 and substitute the following:
3.4.3 Addenda will be issued no later than 120 hours prior to the time for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

2.16 Insert the following Sections 3.4.5 and 3.4.6:
3.4.5 When the date for receipt of Bids is to be postponed and there is insufficient time to issue a written Addendum prior to the original Bid Date, Owner will notify prospective Bidders by telephone or other appropriate means with immediate follow up with a written Addendum. This Addendum will verify the postponement of the original Bid Date and establish a new Bid Date. The new Bid Date will be no earlier than the fifth (5th) calendar day after the date of issuance of the Addendum postponing the original Bid Date.

3.4.6 If an emergency or unanticipated event interrupts normal government processes so that bids cannot be received at the government office designated for receipt of bids by the exact time specified in the solicitation, the time specified for receipt of bids will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal government processes resume. In lieu of an automatic extension, an Addendum may be issued to reschedule bid opening. If state offices are closed at the time a pre-bid or pre-proposal conference is scheduled, an Addendum will be issued to reschedule the conference.

2.17 In Section 4.1.1, delete the word “forms” and substitute the words “SE-330 Bid Form.”

2.18 Delete Section 4.1.2 and substitute the following:
4.1.2 Any blanks on the bid form to be filled in by the Bidder shall be legibly executed in a non-erasable medium. Bids shall be signed in ink or other indelible media.

2.19 Delete Section 4.1.3 and substitute the following:
4.1.3 Sums shall be expressed in figures.

2.20 Insert the following at the end of Section 4.1.4:
Bidder shall not make stipulations or qualify his bid in any manner not permitted on the bid form. An incomplete Bid or information not requested that is written on or attached to the Bid Form that could be considered a qualification of the Bid, may be cause for rejection of the Bid.
2.21 Delete Section 4.1.5 and substitute the following:

4.1.5 All requested Alternates shall be bid. The failure of the bidder to indicate a price for an Alternate shall render the Bid non-responsive. Indicate the change to the Base Bid by entering the dollar amount and marking, as appropriate, the box for "ADD TO" or "DEDUCT FROM". If no change in the Base Bid is required, enter "ZERO" or "No Change." For add alternates to the base bid, Subcontractor(s) listed on page BF-2 of the Bid Form to perform Alternate Work shall be used for both Alternates and Base Bid Work if Alternates are accepted.

2.22 Delete Section 4.1.6 and substitute the following:

4.1.6 Pursuant to Title 11, Chapter 35, Section 3020(b)(i) of the South Carolina Code of Laws, as amended, Section 7 of the Bid Form sets forth a list of subcontractor specialties for which Bidder is required to identify only those subcontractors Bidder will use to perform the work of each listed specialty. Bidder must follow the Instructions in the Bid Form for filling out this section of the Bid Form. Failure to properly fill out Section 7 may result in rejection of Bidder’s bid as non-responsive.

2.23 Delete Section 4.1.7 and substitute the following:

4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

2.24 Delete Section 4.2.1 and substitute the following:

4.2.1 If required by the Invitation for Bids, each Bid shall be accompanied by a bid security in an amount of not less than five percent of the Base Bid. The bid security shall be a bid bond or a certified cashier’s check. The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

2.25 Delete Section 4.2.2 and substitute the following:

4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney. The bid bond shall:

.1 Be issued by a surety company licensed to do business in South Carolina;
.2 Be issued by a surety company having, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty", which company shows a financial strength rating of at least five (5) times the contract price.
.3 Be enclosed in the bid envelope at the time of Bid Opening, either in paper copy or as an electronic bid bond authorization number provided on the Bid Form and issued by a firm or organization authorized by the surety to receive, authenticate and issue binding electronic bid bonds on behalf the surety.

2.26 Delete Section 4.2.3 and substitute the following:

4.2.3 By submitting a bid bond via an electronic bid bond authorization number on the Bid Form and signing the Bid Form, the Bidder certifies that an electronic bid bond has been executed by a Surety meeting the standards required by the Bidding Documents and the Bidder and Surety are firmly bound unto the State of South Carolina under the conditions provided in this Section 4.2.

2.27 Insert the following Section 4.2.4:

4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and performance and payment bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all Bids have been rejected.

2.28 Delete Section 4.3.1 and substitute the following:

4.3.1 All copies of the Bid, the bid security, if any, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall, unless hand delivered by the Bidder, be addressed to the Owner’s designated purchasing office as shown in the Invitation for Bids. The envelope shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail or special delivery service (UPS, Federal Express, etc.), the envelope should be labeled "BID ENCLOSED" on the face thereof. Bidders hand delivering their Bids shall deliver Bids to the place of the Bid Opening as shown in the Invitation for Bids. Whether or not Bidders attend the Bid Opening, they
shall give their Bids to the Owner’s procurement officer or his/her designee as shown in the Invitation for Bids prior to the time of the Bid Opening.

2.29 Insert the following Section 4.3.6 and substitute the following:

4.3.5 The official time for receipt of Bids will be determined by reference to the clock designated by the Owner’s procurement officer or his/her designee. The procurement officer conducting the Bid Opening will determine and announce that the deadline has arrived and no further Bids or bid modifications will be accepted. All Bids and bid modifications in the possession of the procurement officer at the time the announcement is completed will be timely, whether or not the bid envelope has been date/time stamped or otherwise marked by the procurement officer.

2.30 Delete Section 4.4.2 and substitute the following:

4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be withdrawn in person or by written notice to the party receiving Bids at the place designated for receipt of Bids. Withdrawal by written notice shall be in writing over the signature of the Bidder.

2.31 In Section 5.1, delete everything following the caption “OPENING OF BIDS” and substitute the following:

5.1.1 Bids received on time will be publicly opened and will be read aloud. Owner will not read aloud Bids that Owner determines, at the time of opening, to be non-responsive.

5.1.2 At bid opening, Owner will announce the date and location of the posting of the Notice of Intended Award.

5.1.3 Owner will send a copy of the final Bid Tabulation to all Bidders within ten (10) working days of the Bid Opening.

5.1.4 If Owner determines to award the Project, Owner will, after posting a Notice of Intended Award, send a copy of the Notice to all Bidders.

5.1.5 If only one Bid is received, Owner will open and consider the Bid.

2.32 In Section 5.2, insert the section number “5.2.1” before the words of the “The Owner” at the beginning of the sentence.

2.33 Insert the following Sections 5.2.2 and 5.2.3:

5.2.2 The reasons for which the Owner will reject Bids include, but are not limited to:

.1 Failure by a Bidder to be represented at a Mandatory Pre-Bid Conference or site visit;
.2 Failure to deliver the Bid on time;
.3 Failure to comply with Bid Security requirements, except as expressly allowed by law;
.4 Listing an invalid electronic Bid Bond authorization number on the bid form;
.5 Failure to Bid an Alternate, except as expressly allowed by law;
.6 Failure to list qualified Subcontractors as required by law;
.7 Showing any material modification(s) or exception(s) qualifying the Bid;
.8 Faxing a Bid directly to the Owner or their representative; or
.9 Failure to include a properly executed Power-of-Attorney with the bid bond.

5.2.3 The Owner may reject a Bid as nonresponsive if the prices bid are materially unbalanced between line items or sub-line items. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the bid will result in the lowest overall cost to the Owner even though it may be the low evaluated bid, or if it is so unbalanced as to be tantamount to allowing an advance payment.

2.34 Delete Section 6.1 and substitute the following:

6.1 CONTRACTOR’S RESPONSIBILITY

Owner will make a determination of Bidder’s responsibility before awarding a contract. Bidder shall provide all information and documentation requested by the Owner to support the Owner’s evaluation of responsibility. Failure of Bidder to provide requested information is cause for the Owner, at its option, to determine the Bidder to be non-responsible.

2.35 Delete the language of Section 6.2 and insert the word “Reserved.”

2.36 Delete the language of Sections 6.3.2, 6.3.3, and 6.3.4 and insert the word “Reserved” after each Section Number.
2.37 Insert the following Section 6.4

6.4 CLARIFICATION
Pursuant to Section 11-35-1520(8), the Procurement Officer may elect to communicate with a Bidder after opening for the purpose of clarifying either the Bid or the requirements of the Invitation for Bids. Such communications may be conducted only with Bidders who have submitted a Bid which obviously conforms in all material aspects to the Invitation for Bids and only in accordance with Appendix D (Paragraph A(6)) to the Manual for Planning and Execution of State Permanent Improvement, Part II. Clarification of a Bid must be documented in writing and included with the Bid. Clarifications may not be used to revise a Bid or the Invitation for Bids. [Section 11-35-1520(8); R.19-445.2080]

2.38 Delete Section 7.1.2 and substitute the following:

7.1.2 The performance and payment bonds shall conform to the requirements of Section 11.4 of the General Conditions of the Contract. If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid.

2.39 Delete the language of Section 7.1.3 and insert the word “Reserved.”

2.40 In Section 7.2, insert the words “CONTRACT, CERTIFICATES OF INSURANCE” into the caption after the word “Delivery.”

2.41 Delete Section 7.2.1 and substitute the following:

7.2.1 After expiration of the protest period, the Owner will tender a signed Contract for Construction to the Bidder and the Bidder shall return the fully executed Contract for Construction to the Owner within seven days thereafter. The Bidder shall deliver the required bonds and certificate of insurance to the Owner not later than three days following the date of execution of the Contract. Failure to deliver these documents as required shall entitle the Owner to consider the Bidder’s failure as a refusal to enter into a contract in accordance with the terms and conditions of the Bidder’s Bid and to make claim on the Bid Security for re-procurement cost.

2.42 Delete the language of Section 7.2.2 and insert the word “Reserved.”

2.43 Delete the language of Article 8 and insert the following:

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on South Carolina Modified AIA Document A101, 2007, Standard Form of Agreement Between Owner and Contractor as modified by OSE Form 00501 – Standard Modification to Agreement Between Owner and Contractor.

2.44 Insert the following Article 9:

ARTICLE 9 MISCELLANEOUS

9.1 NONRESIDENT TAXPAYER REGISTRATION AFFIDAVIT INCOME TAX WITHHOLDING

IMPORTANT TAX NOTICE - NONRESIDENTS ONLY
Withholding Requirements for Payments to Nonresidents: Section 12-8-550 of the South Carolina Code of Laws requires persons hiring or contracting with a nonresident conducting a business or performing personal services of a temporary nature within South Carolina to withhold 2% of each payment made to the nonresident. The withholding requirement does not apply to (1) payments on purchase orders for tangible personal property when the payments are not accompanied by services to be performed in South Carolina, (2) nonresidents who are not conducting business in South Carolina, (3) nonresidents for contracts that do not exceed $10,000 in a calendar year, or (4) payments to a nonresident who (a) registers with either the S.C. Department of Revenue or the S.C. Secretary of State and (b) submits a Nonresident Taxpayer Registration Affidavit - Income Tax Withholding, Form I-312 to the person letting the contract.

For information about other withholding requirements (e.g., employee withholding), contact the Withholding Section at the South Carolina Department of Revenue at 803-898-5383 or visit the Department's website at: www.sctax.org
This notice is for informational purposes only. This Owner does not administer and has no authority over tax issues. All registration questions should be directed to the License and Registration Section at 803-898-5872 or to the South Carolina Department of Revenue, Registration Unit, Columbia, S.C. 29214-0140. All withholding questions should be directed to the Withholding Section at 803-898-5383.

PLEASE SEE THE "NONRESIDENT TAXPAYER REGISTRATION AFFIDAVIT INCOME TAX WITHHOLDING" FORM (Available through SC Department of Revenue).
9.2 CONTRACTOR LICENSING
Contractors and Subcontractors listed in Section 7 of the Bid Form who are required by the South Carolina Code of Laws to be licensed, must be licensed at the time of bidding.

9.3 SUBMITTING CONFIDENTIAL INFORMATION
For every document Bidder submits in response to or with regard to this solicitation or request, Bidder must separately mark with the word "CONFIDENTIAL" every page, or portion thereof, that Bidder contends contains information that is exempt from public disclosure because it is either (a) a trade secret as defined in Section 30-4-40(a)(1), or (b) privileged & confidential, as that phrase is used in Section 11-35-410. For every document Bidder submits in response to or with regard to this solicitation or request, Bidder must separately mark with the words "TRADE SECRET" every page, or portion thereof, that Bidder contends contains a trade secret as that term is defined by Section 39-8-20 of the Trade Secrets Act. For every document Bidder submits in response to or with regard to this solicitation or request, Bidder must separately mark with the word "PROTECTED" every page, or portion thereof, that Bidder contends is protected by Section 11-35-1810. All markings must be conspicuous; use color, bold, underlining, or some other method in order to conspicuously distinguish the mark from the other text. Do not mark your entire bid as confidential, trade secret, or protected! If your bid, or any part thereof, is improperly marked as confidential or trade secret or protected, the State may, in its sole discretion, determine it nonresponsive. If only portions of a page are subject to some protection, do not mark the entire page. By submitting a response to this solicitation, Bidder (1) agrees to the public disclosure of every page of every document regarding this solicitation or request that was submitted at any time prior to entering into a contract (including, but not limited to, documents contained in a response, documents submitted to clarify a response, & documents submitted during negotiations), unless the page is conspicuously marked "TRADE SECRET" or "CONFIDENTIAL" or "PROTECTED", (2) agrees that any information not marked, as required by these bidding instructions, as a "Trade Secret" is not a trade secret as defined by the Trade Secrets Act, & (3) agrees that, notwithstanding any claims or markings otherwise, any prices, commissions, discounts, or other financial figures used to determine the award, as well as the final contract amount, are subject to public disclosure. In determining whether to release documents, the State will detrimentally rely on Bidders's marking of documents, as required by these bidding instructions, as being either "Confidential" or "Trade Secret" or "PROTECTED". By submitting a response, Bidder agrees to defend, indemnify & hold harmless the State of South Carolina, its officers & employees, from every claim, demand, loss, expense, cost, damage or injury, including attorney’s fees, arising out of or resulting from the State withholding information that Bidder marked as "confidential" or "trade secret" or "PROTECTED".

9.4 POSTING OF INTENT TO AWARD
Notice of Intent to Award, SE-370, will be posted at the following location:

| Room or Area of Posting: | Bulletin Board Outside of Room PG203 |
| Building Where Posted:   | MUSC Parking Garage 1, 2nd Floor     |
| Address of Building:     | 97 Jonathan Lucas Street, Charleston, SC 29425 |
| WEB site address (if applicable): | N/A |

Posting date will be announced at bid opening. In addition to posting the notice, the Owner will promptly send all responsive bidders a copy of the notice of intent to award and the final bid tabulation

9.5 PROTEST OF SOLICITATION OR AWARD
Any prospective bidder, offeror, contractor, or subcontractor who is aggrieved in connection with the solicitation of a contract shall protest within fifteen days of the date of issuance of the applicable solicitation document at issue. Any actual bidder, offeror, contractor, or subcontractor who is aggrieved in connection with the intended award or award of a contract shall protest within ten days of the date notification of intent to award is posted in accordance with Title 11, Chapter 35, Section 4210 of the South Carolina Code of Laws, as amended. A protest shall be in writing, shall set forth the grounds of the protest and the relief requested with enough particularity to give notice of the issues to be decided, and must be received by the State Engineer within the time provided.

Any protest must be addressed to the CPO, Office of State Engineer, and submitted in writing:

A. by email to protest-ose@mmo.sc.gov,
B. by facsimile at 803-737-0639, or
C. by post or delivery to 1201 Main Street, Suite 600, Columbia, SC 29201.

By submitting a protest to the foregoing email address, you (and any person acting on your behalf) consent to receive communications regarding your protest (and any related protests) at the e-mail address from which you sent your protest.
9.6 SOLICITATION INFORMATION FROM SOURCES OTHER THAN OFFICIAL SOURCE
South Carolina Business Opportunities (SCBO) is the official state government publication for State of South Carolina solicitations. Any information on State agency solicitations obtained from any other source is unofficial and any reliance placed on such information is at the bidder’s sole risk and is without recourse under the South Carolina Consolidated Procurement Code.

9.7 BUILDER’S RISK INSURANCE
Bidders are directed to Article 11.3 of the South Carolina Modified AIA Document A201, 2007 Edition, which, unless provided otherwise in the bid documents, requires the contractor to provide builder’s risk insurance on the project.

9.8 TAX CREDIT FOR SUBCONTRACTING WITH MINORITY FIRMS
Pursuant to Section 12-6-3350, taxpayers, who utilize certified minority subcontractors, may take a tax credit equal to 4% of the payments they make to said subcontractors. The payments claimed must be based on work performed directly for a South Carolina state contract. The credit is limited to a maximum of fifty thousand dollars annually. The taxpayer is eligible to claim the credit for 10 consecutive taxable years beginning with the taxable year in which the first payment is made to the subcontractor that qualifies for the credit. After the above ten consecutive taxable years, the taxpayer is no longer eligible for the credit. The credit may be claimed on Form TC-2, "Minority Business Credit." A copy of the subcontractor's certificate from the Governor's Office of Small and Minority Business Assistance (OSMBA) is to be attached to the contractor's income tax return. Taxpayers must maintain evidence of work performed for a State contract by the minority subcontractor. Questions regarding the tax credit and how to file are to be referred to: SC Department of Revenue, Research and Review, Phone: (803) 898-5786, Fax: (803) 898-5888. The subcontractor must be certified as to the criteria of a "Minority Firm" by the Governor's Office of Small and Minority Business Assistance (OSMBA). Certificates are issued to subcontractors upon successful completion of the certification process. Questions regarding subcontractor certification are to be referred to: Governor's Office of Small and Minority Business Assistance, Phone: (803) 734-0657, Fax: (803) 734-2498. Reference: SC §11-35-5010 – Definition for Minority Subcontractor & SC §11-35-5230 (B) – Regulations for Negotiating with State Minority Firms.

9.9 OTHER SPECIAL CONDITIONS OF THE WORK
Contractor(s) shall comply with the attached MUSC Policy 49 - Tobacco-Free Campus Policy and M/WBE Requirements.
Successful bidder will be required to maintain a separate Schedule of Values for project, and will be required to maintain accounting and invoices to the Owner for work performed, based upon the respective approved Schedule of Values.

END OF DOCUMENT
AIA A310 latest version

(Bid Bond)

Document may be viewed at A/E office
LUMP SUM BID FORM

Bidders shall submit bids on only Bid Form SE-330.

BID SUBMITTED BY: ____________________________  
(Bidder's Name)

BID SUBMITTED TO: Medical University of South Carolina (MUSC)  
(Owner's Name)

FOR:  PROJECT NAME: ANDERSON HOUSE HVAC PIPING INSTALLATION

PROJECT NUMBER: NA

OFFER

§ 1. In response to the Invitation for Construction Services and in compliance with the Instructions to Bidders for the above-named Project, the undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Contract with the Owner on the terms included in the Bidding Documents, and to perform all Work as specified or indicated in the Bidding Documents, for the prices and within the time frames indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

§ 2. Pursuant to Section 11-35-3030(1) of the SC Code of Laws, as amended, Bidder has submitted Bid Security as follows in the amount and form required by the Bidding Documents:

- [ ] Bid Bond with Power of Attorney
- [ ] Electronic Bid Bond
- [ ] Cashier's Check

(Bidder check one)

§ 3. Bidder acknowledges the receipt of the following Addenda to the Bidding Documents and has incorporated the effects of said Addenda into this Bid:

(Bidder, check all that apply. Note, there may be more boxes than actual addenda. Do not check boxes that do not apply)

ADDENDA:

- [ ] #1
- [ ] #2
- [ ] #3
- [ ] #4
- [ ] #5

§ 4. Bidder accepts all terms and conditions of the Invitation for Bids, including, without limitation, those dealing with the disposition of Bid Security. Bidder agrees that this Bid, including all Bid Alternates, if any, may not be revoked or withdrawn after the opening of bids, and shall remain open for acceptance for a period of 60 days following the Bid Date, or for such longer period of time that Bidder may agree to in writing upon request of the Owner.

§ 5. Bidder herewith offers to provide all labor, materials, equipment, tools of trades and labor, accessories, appliances, warranties and guarantees, and to pay all royalties, fees, permits, licenses and applicable taxes necessary to complete the following items of construction work:

§ 6.1 BASE BID WORK (as indicated in the Bidding Documents and generally described as follows): The Scope of work is to install new chilled water and hot water piping to the Anderson House from the Quad Building at MUSC.

Which sum is hereafter called the Base Bid.

(Bidder - insert Base Bid Amount on line above)
§ 6.2 BID ALTERNATES as indicated in the Bidding Documents and generally described as follows:

ALTERNATE # 1 (Brief Description):

☐ ADD TO or ☐ DEDUCT FROM BASE BID: $  

(Bidder to Mark appropriate box to clearly indicate the price adjustment offered for each alternate)

ALTERNATE # 2 (Brief Description):

☐ ADD TO or ☐ DEDUCT FROM BASE BID: $  

(Bidder to Mark appropriate box to clearly indicate the price adjustment offered for each alternate)

ALTERNATE # 3 (Brief Description):

☐ ADD TO or ☐ DEDUCT FROM BASE BID: $  

(Bidder to Mark appropriate box to clearly indicate the price adjustment offered for each alternate)

§ 6.3 UNIT PRICES:

BIDDER offers for the Agency’s consideration and use, the following UNIT PRICES. The UNIT PRICES offered by BIDDER indicate the amount to be added to or deducted from the CONTRACT SUM for each item-unit combination. UNIT PRICES include all costs to the Agency, including those for materials, labor, equipment, tools of trades and labor, fees, taxes, insurance, bonding, overhead, profit, etc. The Agency reserves the right to include or not to include any of the following UNIT PRICES in the Contract and to negotiate the UNIT PRICES with BIDDER.

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<th>No.</th>
<th>ITEM</th>
<th>Unit of Measure</th>
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§ 7. LISTING OF PROPOSED SUBCONTRACTORS PURSUANT TO SECTION 3020(b)(i), CHAPTER 35, TITLE 11 OF THE SOUTH CAROLINA CODE OF LAWS, AS AMENDED
(See Instructions on the following page BF-2A)

Bidder shall use the below-listed Subcontractors in the performance of the Subcontractor Classification work listed:

<table>
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<tr>
<th>SUBCONTRACTOR CLASSIFICATION</th>
<th>SUBCONTRACTOR'S PRIME CONTRACTOR'S NAME (Must be completed by Bidder)</th>
<th>SUBCONTRACTOR'S PRIME CONTRACTOR'S SC LICENSE NUMBER (Requested, but not Required)</th>
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If a Bid Alternate is accepted, Subcontractors listed for the Bid Alternate shall be used for the work of both the Alternate and the Base Bid work.
SE-330
LUMP SUM BID FORM

INSTRUCTIONS FOR SUBCONTRACTOR LISTING

1. Section 7 of the Bid Form sets forth an Owner developed list of contractor/subcontractor specialties by contractor license category and/or subcategory for which bidder is required to identify the entity (subcontractor(s) and/or himself) Bidder will use to perform the work of each listed specialty.
   a. **Column A**: The Owner fills out this column, which identifies the contractor/subcontractor specialties for which the bidder must list either a subcontractor or himself as the entity that will perform this work. Subcontractor specialties are identified by contractor license categories or subcategories listed in Title 40 of the South Carolina Code of laws. If the owner has not identified a specialty, the bidder does not list a subcontractor.
   b. **Columns B and C**: In these columns, the Bidder identifies the subcontractors it will use for the work of each specialty listed by the Owner in Column A. Bidder must identify only the subcontractor(s) who will perform the work and no others. Bidders should make sure that their identification of each subcontractor is clear and unambiguous. A listing that could be any number of different entities may be cause for rejection of the bid as non-responsive. For example, a listing of M&M without more may be problematic if there are multiple different licensed contractors in South Carolina whose names start with M&M.

2. **Subcontractor Defined**: For purposes of subcontractor listing, a subcontractor is an entity who will perform work or render service to the prime contractor to or about the construction site pursuant to a contract with the prime contractor. Bidder should not identify sub-subcontractors in the spaces provided on the bid form but only those entities with which bidder will contract directly. Likewise, do not identify material suppliers, manufacturers, and fabricators that will not perform physical work at the site of the project but will only supply materials or equipment to the bidder or proposed subcontractor(s).

3. **Subcontractor Qualifications**: Bidder must only list subcontractors who possess a South Carolina Contractor’s license with the license classification and/or subclassification identified by the Owner in the first column on the left. The subcontractor license must also be within the appropriate license group for the work of the specialty. If Bidder lists a subcontractor who is not qualified to perform the work, the Bidder will be rejected as non-responsive.

4. **Use of Own forces**: If under the terms of the Bidding Documents, Bidder is qualified to perform the work of a listed specialty and Bidder does not intend to subcontract such work but to use Bidder’s own employees to perform such work, the Bidder must insert its own name in the space provided for that specialty.

5. **Use of Multiple Subcontractors**:
   a. If Bidder intends to use multiple subcontractors to perform the work of a single specialty listing, Bidder must insert the name of each subcontractor Bidder will use, preferably separating the name of each by the word “and”. If Bidder intends to use both his own employees to perform a part of the work of a single specialty listing and to use one or more subcontractors to perform the remaining work for that specialty listing, bidder must insert his own name and the name of each subcontractor, preferably separating the name of each with the word “and”. Bidder must use each entity listed for the work of a single specialty listing in the performance of that work.
   b. **Optional Listing Prohibited**: Bidder may not list multiple subcontractors for a specialty listing, in a form that provides the Bidder the option, after bid opening or award, to choose to use one or more but not all the listed subcontractors to perform the work for which they are listed. A listing, which on its face requires subsequent explanation to determine whether it is an optional listing, is non-responsive. If bidder intends to use multiple entities to perform the work for a single specialty listing, bidder must clearly set forth on the bid form such intent. Bidder may accomplish this by simply inserting the word “and” between the names of each entity listed for that specialty. Agency will reject as non-responsive a listing that contains the names of multiple subcontractors separated by a blank space, the word “or”, a virgule (that is a /), or any separator that the Agency may reasonably interpret as an optional listing.

6. If Bidder is awarded the contract, bidder must, except with the approval of the Agency for good cause shown, use the listed entities to perform the work for which they are listed.

7. If bidder is awarded the contract, bidder will not be allowed to substitute another entity as subcontractor in place of a subcontractor listed in Section 7 of the Bid except for one or more of the reasons allowed by the SC Code of Laws.

8. Bidder’s failure to identify an entity (subcontractor or himself) to perform the work of a subcontractor specialty listed in the first column on the left will render the Bid non-responsive.
§ 8. LIST OF MANUFACTURERS, MATERIAL SUPPLIERS, AND SUBCONTRACTORS OTHER THAN SUBCONTRACTORS LISTED IN SECTION 7 ABOVE (FOR INFORMATION ONLY):  
Pursuant to instructions in the Invitation for Construction Services, if any, Bidder will provide to Owner upon the Owner’s request and within 24 hours of such request, a listing of manufacturers, material suppliers, and subcontractors, other than those listed in Section 7 above, that Bidder intends to use on the project. Bidder acknowledges and agrees that this list is provided for purposes of determining responsibility and not pursuant to the subcontractor listing requirements of SC Code Ann § 11-35-3020(b)(i).

§ 9. TIME OF CONTRACT PERFORMANCE AND LIQUIDATED DAMAGES  
a) CONTRACT TIME  
Bidder agrees that the Date of Commencement of the Work shall be established in a Notice to Proceed to be issued by the Owner. Bidder agrees to substantially complete the Work within 120 Calendar Days from the Date of Commencement, subject to adjustments as provided in the Contract Documents.

b) LIQUIDATED DAMAGES  
Bidder further agrees that from the compensation to be paid, the Owner shall retain as Liquidated Damages the amount of $500 for each Calendar Day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. This amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty for nonperformance.

§ 10. AGREEMENTS  
a) Bidder agrees that this bid is subject to the requirements of the laws of the State of South Carolina.

b) Bidder agrees that at any time prior to the issuance of the Notice to Proceed for this Project, this Project may be canceled for the convenience of, and without cost to, the State.

c) Bidder agrees that neither the State of South Carolina nor any of its agencies, employees or agents shall be responsible for any bid preparation costs, or any costs or charges of any type, should all bids be rejected or the Project canceled for any reason prior to the issuance of the Notice to Proceed.

§ 11. ELECTRONIC BID BOND  
By signing below, the Principal is affirming that the identified electronic bid bond has been executed and that the Principal and Surety are firmly bound unto the State of South Carolina under the terms and conditions of the AIA Document A310, Bid Bond, included in the Bidding Documents.

ELECTRONIC BID BOND NUMBER: ________________________________
SIGNATURE AND TITLE: ________________________________
CONTRACTOR'S CLASSIFICATIONS AND SUBCLASSIFICATIONS WITH LIMITATION

SC Contractor's License Number(s): ________________________________

Classification(s) & Limits: ________________________________

Subclassification(s) & Limits: ________________________________

By signing this Bid, the person signing reaffirms all representation and certification made by both the person signing and the Bidder, including without limitation, those appearing in Article 2 of the Instructions to Bidders, is expressly incorporated by reference.

BIDDER’S LEGAL NAME: ________________________________

ADDRESS: ________________________________

______________________________

TELEPHONE: ________________________________

EMAIL: ________________________________

SIGNATURE: ________________________________  DATE: __________

PRINT NAME: ________________________________

TITLE: ________________________________
AIA A101 -2007
(Standard Form of Agreement between Owner and Contractor)

Document maybe viewed at A/E office
OSE FORM 00501
STANDARD MODIFICATIONS TO AGREEMENT BETWEEN OWNER AND CONTRACTOR

AGENCY: Medical University of South Carolina (MUSC)
PROJECT NAME: NA
PROJECT NUMBER: ANDERSON HOUSE HVAC PIPING INSTALLATION

1. STANDARD MODIFICATIONS TO AIA A101-2007
1.1 These Standard Modifications amend or supplement the Standard Form of Agreement Between Owner and Contractor (AIA Document A101-2007) and other provisions of Bidding and Contract Documents as indicated below.

1.2 All provisions of A101-2007, which are not so amended or supplemented, remain in full force and effect.

2. MODIFICATIONS TO A101
2.1 Insert the following at the end of Article 1:

2.2 Delete Section 3.1 and substitute the following:
3.1 The Date of Commencement of the Work shall be the date fixed in a Notice to Proceed issued by the Owner. The Owner shall issue the Notice to Proceed to the Contractor in writing, no less than seven days prior to the Date of Commencement. Unless otherwise provided elsewhere in the contract documents, and provided the contractor has secured all required insurance and surety bonds, the contractor may commence work immediately after receipt of the Notice to Proceed.

2.3 Delete Section 3.2 and substitute the following:
3.2 The Contract Time as provided in Section 9(a) of the Bid Form (SE-330) for this Project shall be measured from the Date of Commencement. Contractor agrees that if the Contractor fails to achieve Substantial Completion of the Work within the Contract Time, the Owner shall be entitled to withhold or recover from the Contractor Liquidated Damages in the amounts set forth in Section 9(b) of the Bid Form (SE-330), subject to adjustments of this Contract Time as provided in the Contract Documents.

2.4 In Section 5.1.1, insert the words “and Owner” after the phrase “Payment submitted to the Architect.”

2.5 Delete Section 5.1.3 and substitute the following:
5.1.3 The Owner shall make payment of the certified amount to the Contractor not later than 21 days after receipt of the Application for Payment.

2.6 In Section 5.1.6, insert the following after the phrase “Subject to other provisions of the Contract Documents”: and subject to Title 12, Chapter 8, Section 550 of the South Carolina Code of Laws, as amended (Withholding Requirements for Payments to Non-Residents). In the spaces provided in Sub-Sections 1 and 2 for inserting the retainage amount, insert “three and one-half percent (3.5%).”

2.7 In Section 5.1.8, delete the word “follows” and the colon and substitute the following:

2.8 In Section 5.1.9, delete the words “Except with the Owner’s prior approval, the” before the word “Contractor.”

2.9 In Section 5.2.2, delete the number 30 and substitute the number 21, delete everything following the words “Certificate for Payment” and place a period at the end of the resulting sentence.

2.10 Delete the language of Sections 6.1 and 6.2 and substitute the word “Reserved” for the deleted language of each Section.

2.11 Delete the language of Section 8.2 and substitute the word “Reserved.”
2.12 In Section 8.3, make the word “Representative” in the title plural, delete everything following the title, and substitute the following:

8.3.1 Owner designates the individual listed below as its Senior Representative (“Owner's Senior Representative”), which individual has the responsibility for and, subject to Section 7.2.1 of the General Conditions, the authority to resolve disputes under Section 15.6 of the General Conditions:

Name: Mr. Phil Mauney
Title: Director of Engineering as the Senior Representative
Address: 97 Jonathan Lucas Street, Charleston, SC 29425
Telephone: 843-792-2490 FAX: 843-792-0251
Email: mauney@musc.edu

8.3.2 Owner designates the individual listed below as its Owner's Representative, which individual has the authority and responsibility set forth in Section 2.1.1 of the General Conditions:

Name: Mr. Robert Branson
Title: Project Manager
Address: 97 Johnathan Lucas Street, Charleston, SC 29425
Telephone: 843-792-7502 FAX: 843-792-0251
Email: bransonr@musc.edu

2.13 In Section 8.4, make the word “Representative” in the title plural, delete everything following the title, and substitute the following:

8.4.1 Contractor designates the individual listed below as its Senior Representative (“Contractor's Senior Representative”), which individual has the responsibility for and authority to resolve disputes under Section 15.6 of the General Conditions:

Name: 
Title: 
Address: 
Telephone: FAX: 
Email:

8.4.2 Contractor designates the individual listed below as its Contractor's Representative, which individual has the authority and responsibility set forth in Section 3.1.1 of the General Conditions:

Name: 
Title: 
Address: 
Telephone: FAX: 
Email:

2.14 Add the following Section 8.6.1:

8.6.1 The Architect’s representative:

Name: Michael Liddle, PE
Title: Project Manager
Address: 1514 Mathis Ferry Rd. Ste 215, Mt Pleasant, SC 29464
Telephone: 843-647-3246 FAX: 
Email: mike@echoengr.com
2.15 In Section 9.1.7, Sub-Section 2, list the following documents in the space provided for listing documents:

- Invitation for Construction Services (SE-310)
- Instructions to Bidders (AIA Document A701-1997)
- Standard Supplemental Instructions to Bidders (OSE Form 00201)
- Contractor’s Bid (Completed SE-330)
- Notice of Intent to Award (Completed SE-370)

2.16 In Article 10, delete everything after the first sentence.

END OF DOCUMENT
AIA A201 - 2007
General Conditions of the Contract for Construction
Document may be viewed at A/E office
1. GENERAL CONDITIONS
   The General Conditions of the Contract for Construction, AIA Document A201, 2007 Edition, Articles 1 through 15 inclusive, is a part of this Contract and is incorporated as fully as if herein set forth. For brevity, AIA Document A201 is also referred to in the Contract Documents collectively as the "General Conditions."

2. STANDARD SUPPLEMENTARY CONDITIONS
   2.1 The following supplements modify, delete and/or add to the General Conditions. Where any portion of the General Conditions is modified or any paragraph, Section or clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of the General Conditions shall remain in effect.

3. MODIFICATIONS TO A201-2007
   3.1 Insert the following at the end of Section 1.1.1:

   3.2 Delete the language of Section 1.1.8 and substitute the word ‘Reserved.’

   3.3 Add the following Section 1.1.9:
   1.1.9 NOTICE TO PROCEED
   Notice to Proceed is a document issued by the Owner to the Contractor, with a copy to the Architect, directing the Contractor to begin prosecution of the Work in accordance with the requirements of the Contract Documents. The Notice to Proceed shall fix the date on which the Contract Time will commence.

   3.4 Insert the following at the end of Section 1.2.1:
   In the event of patent ambiguities within or between parts of the Contract Documents, the contractor shall 1) provide the better quality or greater quantity of Work, or 2) comply with the more stringent requirement, either or both in accordance with the Architect’s interpretation.

   3.5 Delete Section 1.5.1 and substitute the following:
   1.5.1 The Architect and the Architect’s consultants shall be deemed the authors and owners of their respective Instruments of Service and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as a violation of the Architect’s or Architect’s consultants’ reserved rights.

   3.6 Delete Section 2.1.1 and substitute the following:
   2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner’s approval or authorization, except as provided in Section 7.1.2. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term “Owner” means the Owner or the Owner’s Representative. [Reference § 8.2 of the Agreement.]

   3.7 Delete Section 2.1.2 and substitute the following:
   2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to post Notice of Project Commencement pursuant to Title 29, Chapter 5, Section 23 of the South Carolina Code of Laws, as amended.
3.8 Delete Section 2.2.3 and substitute the following:

2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. Subject to the Contractor’s obligations, including those in Section 3.2, the Contractor shall be entitled to rely on the accuracy of information furnished by the Owner pursuant to this Section but shall exercise proper precautions relating to the safe performance of the Work.

3.9 Replace the period at the end of the last sentence of Section 2.2.4 with a semicolon and insert the following after the inserted semicolon:

“however, the Owner does not warrant the accuracy of any such information requested by the Contractor that is not otherwise required of the Owner by the Contract Documents. Neither the Owner nor the Architect shall be required to conduct investigations or to furnish the Contractor with any information concerning subsurface characteristics or other conditions of the area where the Work is to be performed beyond that which is provide in the Contract Documents.”

3.10 Delete Section 2.2.5 and substitute the following:

2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor with ten copies of the Contract Documents. The Contractor may make reproductions of the Contract Documents pursuant to Section 1.5.2. All copies of the drawings and specifications, except the Contractor’s record set, shall be returned or suitably accounted for to the Owner, on request, upon completion of the Work.

3.11 Add the following Sections 2.2.6 and 2.2.7:

2.2.6 The Owner assumes no responsibility for any conclusions or interpretation made by the Contractor based on information made available by the Owner.

2.2.7 The Owner shall obtain, at its own cost, general building and specialty inspection services as required by the Contract Documents. The Contractor shall be responsible for payment of any charges imposed for reinspections.

3.12 Delete Section 2.4 and substitute the following:

2.4 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect, including but not limited to providing necessary resources, with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Directive shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner’s expenses and compensation for the Architect’s additional services made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

3.13 Insert the following at the end of Section 3.2.1:

The Contractor acknowledges that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Owner, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Owner.

3.14 In the third sentence of Section 3.2.4, insert the word “latent” before the word “errors.”

3.15 In the last sentence of Section 3.3.1, insert the words “by the Owner in writing” after the word “instructed.”

3.16 Delete the third sentence of Section 3.5 and substitute the following sentences:

Work, materials, or equipment not conforming to these requirements shall be considered defective. Unless caused by the Contractor or a subcontractor at any tier, the Contractor’s warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage.
3.17 Insert the following at the end of Section 3.6:
The Contractor shall comply with the requirements of Title 12, Chapter 9 of the South Carolina Code of Laws, as amended, regarding withholding tax for nonresidents, employees, contractors and subcontractors.

3.18 In Section 3.7.1, delete the words “the building permit as well as for other” and insert the following sentence at the end of this section:
Pursuant to Title 10, Chapter 1, Section 180 of the South Carolina Code of Laws, as amended, no local general or specialty building permits are required for state buildings.

3.19 Delete the last sentence of Section 3.7.5 and substitute the following:
Adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 7.3.3.

3.20 Delete the last sentence of Section 3.8.2.3 and substitute the following:
The amount of the Change Order shall reflect the difference between actual costs, as documented by invoices, and the allowances under Section 3.8.2.1.

3.21 In Section 3.9.1, insert a comma after the word “superintendent” in the first sentence and insert the following after the inserted comma:
acceptable to the Owner,

3.22 Delete Section 3.9.2 and substitute the following:
3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner the name and qualifications of a proposed superintendent. The Owner may reply within 14 days to the Contractor in writing stating (1) whether the Owner has reasonable objection to the proposed superintendent or (2) that the Owner requires additional time to review. Failure of the Owner to reply within the 14-day period shall constitute notice of no reasonable objection.

3.23 After the first sentence in Section 3.9.3, insert the following sentence:
The Contractor shall notify the Owner, in writing, of any proposed change in the superintendent, including the reason therefore, prior to making such change.

3.24 Delete Section 3.10.3 and substitute the following:
3.10.3 Additional requirements, if any, for the construction schedule are as follows:
(Check box if applicable to this Contract)

☐ The construction schedule shall be in a detailed precedence-style critical path management (CPM) or primavera-type format satisfactory to the Owner and the Architect that shall also (1) provide a graphic representation of all activities and events that will occur during performance of the work; (2) identify each phase of construction and occupancy; and (3) set forth dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents (hereinafter referred to as “Milestone Dates”). Upon review and acceptance by the Owner and the Architect of the Milestone Dates, the construction schedule shall be deemed part of the Contract Documents and attached to the Agreement as Exhibit “A.” If not accepted, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Architect and resubmitted for acceptance. The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and shall promptly advise the Owner of any delays or potential delays. Whenever the approved construction schedule no longer reflects actual conditions and progress of the work or the Contract Time is modified in accordance with the terms of the Contract Documents, the Contractor shall update the accepted construction schedule to reflect such conditions. In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary. In no event shall any progress report constitute an adjustment in the Contract Time, any Milestone Date, or the Contract Sum unless any such adjustment is agreed to by the Owner and authorized pursuant to Change Order.

3.25 Add the following Section 3.10.4:

3.10.4 Owner’s review and acceptance of Contractor’s schedule is not conducted for the purpose of either determining its accuracy and completeness or approving the construction means, methods, techniques, sequences or procedures. The Owner’s approval shall not relieve the Contractor of any obligations. Unless expressly addressed in a Modification, the Owner's approval of a schedule shall not change the Contract Time.
3.26 Add the following Section 3.12.5.1:

3.12.5.1 The fire sprinkler shop drawings shall be prepared by a licensed fire sprinkler contractor and shall accurately reflect actual conditions affecting the required layout of the fire sprinkler system. The fire sprinkler contractor shall certify the accuracy of his shop drawings prior to submitting them for review and approval. The fire sprinkler shop drawings shall be reviewed and approved by the Architect’s engineer of record who, upon approving the sprinkler shop drawings will submit them to the State Fire Marshal or other authorities having jurisdiction for review and approval. The Architect’s engineer of record will submit a copy of the State Fire Marshal’s approval letter to the Contractor, Architect, and OSE. Unless authorized in writing by OSE, neither the Contractor nor subcontractor at any tier shall submit the fire sprinkler shop drawings directly to the State Fire Marshal or other authorities having jurisdiction for approval.

3.27 In the fourth sentence of Section 3.12.10, after the comma following the words “licensed design professional,” insert the following:

who shall comply with reasonable requirements of the Owner regarding qualifications and insurance and

3.28 In Section 3.13, insert the section number “3.13.1” before the before the opening words “The Contractors shall.”

3.29 Add the following Sections 3.13.2 and 3.13.3:

3.13.2 Protection of construction materials and equipment stored at the Project site from weather, theft, vandalism, damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall perform the work in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials, and equipment likely to cause hazardous conditions.

3.13.3 The Contractor and any entity for which the Contractor is responsible shall not erect any sign on the Project site without the prior written consent of the Owner.

3.30 In the first sentence of Section 3.18.1, after the parenthetical “…(other than the Work itself),…” and before the word “…but…”, insert the following:

including loss of use resulting therefrom,

3.31 Delete Section 4.1.1 and substitute the following:

4.1.1 The Architect is that person or entity identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

3.32 Insert the following at the end of Section 4.2.1:

Any reference in the Contract Documents to the Architect taking action or rendering a decision with a “reasonable time” is understood to mean no more than fourteen days, unless otherwise specified in the Contract Documents or otherwise agreed to by the parties.

3.33 Delete the first sentence of Section 4.2.2 and substitute the following:

The Architect will visit the site as necessary to fulfill its obligation to the Owner for inspection services, if any, and, at a minimum, to assure conformance with the Architect’s design as shown in the Contract Documents and to observe the progress and quality of the various components of the Contractor’s Work, and to determine if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents.

3.34 Delete the first sentence of Section 4.2.3 and substitute the following:

On the basis of the site visits, the Architect will keep the Owner informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work.

3.35 In Section 4.2.5, after the words “evaluations of the” and before the word “Contractor’s,” insert the following:

Work completed and correlated with the

3.36 Delete the first sentence of Section 4.2.11 and substitute the following:

4.2.11 The Architect will, in the first instance, interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. Upon receipt of such request, the Architect will promptly provide the non-requesting party with a copy of the request.
3.37 *Insert the following at the end of Section 4.2.12:*

If either party disputes the Architect’s interpretation or decision, that party may proceed as provided in Article 15. The Architect’s interpretations and decisions may be, but need not be, accorded any deference in any review conducted pursuant to law or the Contract Documents.

3.38 *Delete Section 4.2.14 and substitute the following:*

The Architect will review and respond to requests for information about the Contract Documents so as to avoid delay to the construction of the Project. The Architect’s response to such requests will be made in writing with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information. Any response to a request for information must be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. Unless issued pursuant to a Modification, supplemental Drawings or Specifications will not involve an adjustment to the Contract Sum or Contract Time.

3.39 *Delete Section 5.2.1 and substitute the following:*

5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, within fourteen days after posting of the Notice of Intent to Award the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (excluding Listed Subcontractors but including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Owner may reply within 14 days to the Contractor in writing stating (1) whether the Owner has reasonable objection to any such proposed person or entity. Failure of the Owner to reply within the 14 day period shall constitute notice of no reasonable objection.

3.40 *Delete Section 5.2.2 and substitute the following:*

5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner has made reasonable and timely objection. The Owner shall not direct the Contractor to contract with any specific individual or entity for supplies or services unless such supplies and services are necessary for completion of the Work and the specified individual or entity is the only source of such supply or services.

3.41 *In the first sentence of Section 5.2.3, delete the words “…or Architect…” in the two places they appear.*

3.42 *Delete the words “…or Architect…” in the in the first sentence of Section 5.2.4 and insert the following sentence at the end of Section 5.2.4:*

The Contractor’s request for substitution must be made to the Owner in writing accompanied by supporting information.

3.43 *Add the following Section 5.2.5:*

5.2.5 A Subcontractor identified in the Contractor’s Bid in response the specialty subcontractor listing requirements of Section 7 of the Bid Form (SE-330) may only be substituted in accordance with and as permitted by the provisions of Title 11, Chapter 35, Section 3021 of the South Carolina Code of Laws, as amended. A proposed substitute for a Listed Subcontractor shall be subject to the Owner’s approval as set forth in Section 5.2.3.

3.44 *Add the following Section 5.2.6:*

5.2.6 The Iran Divestment Act List is a list published by the Board pursuant to Section 11-57-310 that identifies persons engaged in investment activities in Iran. Currently, the list is available at the following URL: http://procurement.sc.gov/PS/PS-iran-divestment.phtm Consistent with Section 11-57-330(B), the Contractor shall not contract with any person to perform a part of the Work, if, at the time you enter into the subcontract, that person is on the then-current version of the Iran Divestment Act List.

3.45 *In Section 5.3, delete everything following the heading “SUBCONTRACTUAL RELATIONS” and insert the following Sections 5.3.1, 5.3.2, 5.3.3, and 5.3.4:*

5.3.1 By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise herein or in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract
Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.3.2 Without limitation on the generality of Section 5.3.1, each Subcontract agreement and each Sub-subcontract agreement shall include, and shall be deemed to include, the following Sections of these General Conditions: 3.2, 3.5, 3.18, 5.3, 5.4, 6.2.2, 7.3.3, 7.5, 7.6, 13.1, 13.12, 14.3, 14.4, and 15.1.6.

5.3.3 Each Subcontract Agreement and each Sub-subcontract agreement shall exclude, and shall be deemed to exclude, Sections 13.2.1 and 13.6 and all of Article 15, except Section 15.1.6, of these General Conditions. In the place of these excluded sections of the General Conditions, each Subcontract Agreement and each Sub-subcontract may include Sections 13.2.1 and 13.6 and all of Article 15, except Section 15.1.6, of AIA Document A201-2007, Conditions of the Contract, as originally issued by the American Institute of Architects.

5.3.4 The Contractor shall assure the Owner that all agreements between the Contractor and its Subcontractor incorporate the provisions of Subparagraph 5.3.1 as necessary to preserve and protect the rights of the Owner and the Architect under the Contract Documents with respect to the work to be performed by Subcontractors so that the subcontracting thereof will not prejudice such rights. The Contractor’s assurance shall be in the form of an affidavit or in such other form as the Owner may approve. Upon request, the Contractor shall provide the Owner or Architect with copies of any or all subcontracts or purchase orders.

3.46 Delete the last sentence of Section 5.4.1.

3.47 Add the following Sections 5.4.4, 5.4.5 and 5.4.6:

5.4.4 Each subcontract shall specifically provide that the Owner shall only be responsible to the subcontractor for those obligations of the Contractor that accrue subsequent to the Owner’s exercise of any rights under this conditional assignment.

5.4.5 Each subcontract shall specifically provide that the Subcontractor agrees to perform portions of the Work assigned to the Owner in accordance with the Contract Documents.

5.4.6 Nothing in this Section 5.4 shall act to reduce or discharge the Contractor’s payment bond surety’s obligations to claimants for claims arising prior to the Owner’s exercise of any rights under this conditional assignment.

3.48 Delete the language of Section 6.1.4 and substitute the word “Reserved.”

3.49 Insert the following at the end of Section 7.1.2:

If the amount of a Modification exceeds the limits of the Owner’s Construction Change Order Certification (reference Section 9.1.7.2 of the Agreement), then the Owner’s agreement is not effective, and Work may not proceed, until approved in writing by the Office of State Engineer.

3.50 Delete Section 7.2.1 and substitute the following:

7.2.1 A Change Order is a written instrument prepared by the Architect (using State Form SE-380 “Construction Change Order”) and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

3.51 Add the following Sections 7.2.2, 7.2.3, 7.2.4, and 7.2.5:

7.2.2 If a Change Order provides for an adjustment to the Contract Sum, the adjustment must be calculated in accordance with Section 7.3.3.

7.2.3 At the Owner’s request, the Contractor shall prepare a proposal to perform the work of a proposed Change Order setting forth the amount of the proposed adjustment, if any, in the Contract Sum; and the extent of the proposed adjustment, if any, in the Contract Time. Any proposed adjustment in the Contract sum shall be prepared in accordance with Section 7.2.2. The Owner’s request shall include any revisions to the Drawings or Specifications necessary to define any changes in the Work. Within fifteen days of receiving the request, the Contractor shall submit the proposal to the Owner and Architect along with all documentation required by Section 7.6.
7.2.4 If the Contractor requests a Change Order, the request shall set forth the proposed change in the Work and shall be prepared in accordance with Section 7.2.3. If the Contractor requests a change to the Work that involves a revision to either the Drawings or Specifications, the Contractor shall reimburse the Owner for any expenditure associated with the Architects’ review of the proposed revisions, except to the extent the revisions are accepted by execution of a Change Order.

7.2.5 Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, any adjustments to the Contract Sum or the Contract Time.

3.52 **Delete 7.3.3 and substitute the following:**

### 7.3.3 PRICE ADJUSTMENTS

7.3.3.1 If any Modification, including a Construction Change Directive, provides for an adjustment to the Contract Sum, the adjustment shall be based on whichever of the following methods is the most valid approximation of the actual cost to the contractor, with overhead and profit as allowed by Section 7.5:

1. Mutual acceptance of a lump sum;
2. Unit prices stated in the Contract Documents, except as provided in Section 7.3.4, or subsequently agreed upon;
3. Cost attributable to the events or situations under applicable clauses with adjustment of profits or fee, all as specified in the contract, or subsequently agreed upon by the parties, or by some other method as the parties may agree; or
4. As provided in Section 7.3.7.

7.3.3.2 Consistent with Section 7.6, costs must be properly itemized and supported by substantiating data sufficient to permit evaluation before commencement of the pertinent performance or as soon after that as practicable. All costs incurred by the Contractor must be justifiably compared with prevailing industry standards. Except as provided in Section 7.5, all adjustments to the Contract Price shall be limited to job specific costs and shall not include indirect costs, overhead, home office overhead, or profit.

3.53 **Delete Section 7.3.7 and substitute the following:**

7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall make an initial determination, consistent with Section 7.3.3, of the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in Section 7.5. In such case, and also under Section 7.3.3.1.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

1. Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers’ compensation insurance;
2. Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
3. Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others; and
4. Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work.

3.54 **Delete Section 7.3.8 and substitute the following:**

7.3.8 Using the percentages stated in Section 7.5, any adjustment to the Contract Sum for deleted work shall include any overhead and profit attributable to the cost for the deleted Work.

3.55 **Add the following Sections 7.5 and 7.6:**

### 7.5 AGREED OVERHEAD AND PROFIT RATES

7.5.1 For any adjustment to the Contract Sum for which overhead and profit may be recovered, other than those made pursuant to Unit Prices stated in the Contract Documents, the Contractor agrees to charge and accept, as full payment for overhead and profit, the following percentages of costs attributable to the change in the Work. The percentages cited below shall be considered to include all indirect costs including, but not limited to: field and office managers, supervisors and assistants, incidental job burdens, small tools, and general overhead allocations. The allowable percentages for overhead and profit are as follows:
.1 To the Contractor for work performed by the Contractor’s own forces, 17% of the Contractor’s actual costs.

.2 To each Subcontractor for work performed by the Subcontractor’s own forces, 17% of the subcontractor’s actual costs.

.3 To the Contractor for work performed by a subcontractor, 10% of the subcontractor’s actual costs (not including the subcontractor’s overhead and profit).

7.6 PRICING DATA AND AUDIT

7.6.1 Cost or Pricing Data.
Upon request of the Owner or Architect, Contractor shall submit cost or pricing data prior to execution of a Modification which exceeds $500,000. Contractor shall certify that, to the best of its knowledge and belief, the cost or pricing data submitted is accurate, complete, and current as of a mutually determined specified date prior to the date of pricing the Modification. Contractor’s price, including profit, shall be adjusted to exclude any significant sums by which such price was increased because Contractor furnished cost or pricing data that was inaccurate, incomplete, or not current as of the date specified by the parties. Notwithstanding Subparagraph 9.10.4, such adjustments may be made after final payment to the Contractor.

7.6.2 Cost or pricing data means all facts that, as of the date specified by the parties, prudent buyers and sellers would reasonably expect to affect price negotiations significantly. Cost or pricing data are factual, not judgmental; and are verifiable. While they do not indicate the accuracy of the prospective contractor's judgment about estimated future costs or projections, they do include the data forming the basis for that judgment. Cost or pricing data are more than historical accounting data; they are all the facts that can be reasonably expected to contribute to the soundness of estimates of future costs and to the validity of determinations of costs already incurred.

7.6.3 Records Retention.
As used in Section 7.6, the term "records" means any books or records that relate to cost or pricing data that Contractor is required to submit pursuant to Section 7.6.1. Contractor shall maintain records for three years from the date of final payment, or longer if requested by the chief procurement officer. The Owner may audit Contractor’s records at reasonable times and places.

3.56 Delete Section 8.2.2 and substitute the following:

8.2.2 The Contractor shall not knowingly commence operations on the site or elsewhere prior to the effective date of surety bonds and insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such surety bonds or insurance.

3.57 Delete Section 8.3.1 and substitute the following:

8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the control of the Contractor and any subcontractor at any tier; or by delay authorized by the Owner pending dispute resolution; or by other causes that the Architect determines may justify delay, then to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time and provided the delay (1) is not caused by the fault or negligence of the Contractor or a subcontractor at any tier and (2) is not due to unusual delay in the delivery of supplies, machinery, equipment, or services when such supplies, machinery, equipment, or services were obtainable from other sources in sufficient time for the Contractor to meet the required delivery, the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

3.58 Insert the following at the end of Section 9.1:
All changes to the Contract Sum shall be adjusted in accordance with Section 7.3.3.

3.59 Delete Section 9.2 and substitute the following:

9.2 SCHEDULE OF VALUES

9.2.1 The Contractor shall submit to the Architect, within ten days of full execution of the Agreement, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor’s Applications for Payment. As requested by the Architect, the Contractor and each Subcontractor shall prepare a trade payment breakdown for the Work for which each is responsible, such breakdown being submitted on a uniform standardized format approved by the Architect and Owner. The breakdown shall be divided in detail, using convenient units, sufficient to accurately determine the value
of completed Work during the course of the Project. The Contractor shall update the schedule of values as required by either the Architect or Owner as necessary to reflect:

.1 the description of Work (listing labor and material separately);
.2 the total value;
.3 the percent and value of the Work completed to date;
.4 the percent and value of previous amounts billed; and
.5 the current percent completed and amount billed.

9.2.2 Any schedule of values or trade breakdown that fails to include sufficient detail, is unbalanced, or exhibits "front-loading" of the value of the Work shall be rejected. If a schedule of values or trade breakdown is used as the basis for payment and later determined to be inaccurate, sufficient funds shall be withheld from future Applications for Payment to ensure an adequate reserve (exclusive of normal retainage) to complete the Work.

3.60 Delete Section 9.3.1 and substitute the following:
Monthly, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2., for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor’s right to payment as the Owner or Architect may require (such as copies of requisitions from Subcontractors and material suppliers) and shall reflect retainage and any other adjustments provided in Section 5 of the Agreement. If required by the Owner or Architect, the Application for Payment shall be accompanied by a current construction schedule.

3.61 In Section 9.3.2, add the following words to the end of the second sentence:
provided such materials or equipment will be subsequently incorporated in the Work

Insert the following at the end of Section 9.3.2:
The Contractor shall 1) protect such materials from diversion, vandalism, theft, destruction, and damage, 2) mark such materials specifically for use on the Project, and 3) segregate such materials from other materials at the storage facility. The Architect and the Owner shall have the right to make inspections of the storage areas at any time.

3.62 In Section 9.4.2, in the first sentence, after the words “Work has progressed to the point indicated,” insert the following:
in both the Application for Payment and, if required to be submitted by the Contractor, the accompanying current construction schedule

In the last sentence, delete the third item starting with “(3) reviewed copies” and ending with “Contractor’s right to payment,”

3.63 In Section 9.5.1, in the first sentence, delete the word “may” after the opening words “The Architect” and substitute the word “shall.”

In Section 9.5.1, insert the following sentence after the first sentence:
The Architect shall withhold a Certificate of Payment if the Application for Payment is not accompanied by the current construction schedule required by Section 3.10.1.

3.64 In Section 9.6.2, delete the word “The...” at the beginning of the first sentence and substitute the following:
Pursuant to Chapter 6 of Title 29 of the South Carolina Code of Laws, as amended, the

3.65 Delete Section 9.7 and substitute following:

9.7 FAILURE OF PAYMENT
If the Architect does not issue a Certificate for Payment to the Owner, through no fault of the Contractor, within seven days after receipt of the Contractor’s Application for Payment, or if the Owner does not pay the Contractor within seven days after the time established in the Contract Documents the amount certified by the Architect or awarded by a final dispute resolution order, then the Contractor may, upon seven additional days’ written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased, in accordance with the provisions of Section 7.3.3, by the amount of the Contractor’s reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

3.66 Insert the following words at the end of the sentence in Section 9.8.1:
and when all required occupancy permits, if any, have been issued and copies have been delivered to the Owner.
3.67  In Section 9.8.2, insert the word “written” after the word “comprehensive” and before the word “list.”

3.68  Delete Section 9.8.3 and substitute the following:

9.8.3.1  Upon receipt of the Contractor’s list, the Architect, with the Owner and any other person the Architect or the Owner choose, will make an inspection on a date and at a time mutually agreeable to the Architect, Owner, and Contractor, to determine whether the Work or designated portion thereof is substantially complete. The Contractor shall furnish access for the inspection and testing as provided in this Contract. The inspection shall include a demonstration by the Contractor that all equipment, systems and operable components of the Work function properly and in accordance with the Contract Documents. If the Architect’s inspection discloses any item, whether or not included on the Contractor’s list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion. If more than one Substantial Completion inspection is required, the Contractor shall reimburse the Owner for all costs of re-inspections or, at the Owner’s option, the costs may be deducted from payments due to the Contractor.

9.8.3.2  If the Architect and Owner concur in the Contractor’s assessment that the Work or a portion of the Work is safe to occupy, the Owner and Contractor may arrange for a Certificate of Occupancy Inspection by OSE. The Owner, Architect, and Contractor shall be present at OSE’s inspection. Upon verifying that the Work or a portion of the Work is substantially complete and safe to occupy, OSE will issue, as appropriate, a Full or Partial Certificate of Occupancy.

3.69  In the second sentence of Section 9.8.5, delete the words “and consent of surety, if any.”

3.70  In the first sentence of Section 9.9.1, delete the words “Section 11.3.1.5” and substitute the words “Section 11.3.1.3.”

3.71  Delete Section 9.10.1 and substitute the following:

9.10.1  Unless the parties agree otherwise in the Certificate of Substantial Completion, the Contractor shall achieve Final Completion no later than thirty days after Substantial Completion. Upon receipt of the Contractor’s written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the architect, with the Owner and any other person the Architect or the Owner choose, will make an inspection on a date and at a time mutually agreeable to the Architect, Owner, and Contractor, and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect’s knowledge, information and belief, and on the basis of the Architect’s on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect’s final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor’s being entitled to final payment have been fulfilled. If more than one Final Completion inspection is required, the Contractor shall reimburse the Owner for all costs of re-inspections or, at the Owner’s option, the costs may be deducted from payments due to the Contractor. If the Contractor does not achieve final completion within thirty days after Substantial Completion or the timeframe agreed to by the parties in the Certificate of Substantial Completion, whichever is greater, the Contractor shall be responsible for any additional Architectural fees resulting from the delay.

3.72  Delete the first sentence of Section 9.10.2 and substitute the following:

Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner’s property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days’ prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner, (6) required Training Manuals, (7) equipment Operations and Maintenance Manuals, (8) any certificates of testing, inspection or approval required by the Contract Documents and not previously provided (9) all warranties and guarantees required under or pursuant to the Contract Documents, and (10) one copy of the Documents required by Section 3.11.
3.73 Delete the first sentence of Section 9.10.3 and substitute the following:
If, after Substantial Completion of the Work, final completion thereof is delayed 60 days through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted.

3.74 Delete Section 9.10.5 and substitute the following:

9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those specific claims in stated amounts that have been previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

3.75 Add the following Section 9.10.6:

9.10.6 If OSE has not previously issued a Certificate of Occupancy for the entire Project, the Parties shall arrange for a representative of OSE to participate in the Final Completion Inspection. Representatives of the State Fire Marshal’s Office and other authorities having jurisdiction may be present at the Final Completion Inspection or otherwise inspect the completed Work and advise the Owner whether the Work meets their respective requirements for the Project.

3.76 Delete Section 10.3.1 and substitute the following:

10.3.1 If the Contractor encounters a hazardous material or substance which was not discoverable as provided in Section 3.2.1 and not required by the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons or serious loss to real or personal property resulting from such material or substance encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing. Hazardous materials or substances are those hazardous, toxic, or radioactive materials or substances subject to regulations by applicable governmental authorities having jurisdiction, such as, but not limited to, the S.C. Department of Health and Environmental Control, the U.S. Environmental Protection Agency, and the U.S. Nuclear Regulatory Commission.

3.77 Insert the following at the end of Section 10.3.2:

In the absence of agreement, the Architect will make an interim determination regarding any delay or impact on the Contractor’s additional costs. The Architect’s interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15. Any adjustment in the Contract Sum shall be determined in accordance with Section 7.3.3.

3.78 Delete Section 10.3.3 and substitute the following:

10.3.3 The Work in the affected area shall be resumed immediately following the occurrence of any one of the following events: (a) the Owner causes remedial work to be performed that results in the absence of hazardous materials or substances; (b) the Owner and the Contractor, by written agreement, decide to resume performance of the Work; or (c) the Work may safely and lawfully proceed, as determined by an appropriate governmental authority or as evidenced by a written report to both the Owner and the Contractor, which is prepared by an environmental engineer reasonably satisfactory to both the Owner and the Contractor.

3.79 In Section 10.3.5, delete the word “The” at the beginning of the sentence and substitute the following:

In addition to its obligations under Section 3.18, the

3.80 Delete the language of Section 10.3.6 and substitute the word “Reserved.”

3.81 Insert the following at the end of Section 10.4:

The Contractor shall immediately give the Architect notice of the emergency. This initial notice may be oral followed within five days by a written notice setting forth the nature and scope of the emergency. Within fourteen days of the start of the emergency, the Contractor shall give the Architect a written estimate of the cost and probable effect of delay on the progress of the Work.

3.82 Delete 11.1.2 and substitute the following:

11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified below or required by law, whichever coverage is greater. Coverages shall be written on an occurrence basis and shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor’s completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.
1. COMMERCIAL GENERAL LIABILITY:
   (a) General Aggregate (per project) ........................................... $1,000,000
   (b) Products/Completed Operations ........................................... $1,000,000
   (c) Personal and Advertising Injury ........................................... $1,000,000
   (d) Each Occurrence .............................................................. $1,000,000
   (e) Fire Damage (Any one fire) ............................................... $50,000
   (f) Medical Expense (Any one person) ...................................... $5,000

2. BUSINESS AUTO LIABILITY (including All Owned, Non-owned, and Hired Vehicles):
   (a) Combined Single Limit ........................................................ $1,000,000

3. WORKER’S COMPENSATION:
   (a) State Statutory
   (b) Employers Liability ....................................................... $100,000 Per Acc.
       .................................................. $500,000 Disease, Policy Limit
       .................................................. $100,000 Disease, Each Employee

In lieu of separate insurance policies for Commercial General Liability, Business Auto Liability, and Employers Liability, the Contractor may provide an umbrella policy meeting or exceeding all coverage requirements set forth in this Section 11.1.2. The umbrella policy limits shall not be less than $3,000,000.

3.83 Delete Section 11.1.3 and substitute the following:

11.1.3 Prior to commencement of the Work, and thereafter upon replacement of each required policy of insurance, Contractor shall provide to the Owner a written endorsement to the Contractor’s general liability insurance policy that:
   (i) names the Owner as an additional insureds for claims caused in whole or in part by the Contractor’s negligent acts or omissions during the Contractor’s operations;
   (ii) provides that no material alteration, cancellation, non-renewal, or expiration of the coverage contained in such policy shall have effect unless all additional insureds have been given at least ten (10) days prior written notice of cancellation for non-payment of premiums and thirty (30) days prior written notice of cancellation for any other reason; and
   (iii) provides that the Contractor’s liability insurance policy shall be primary, with any liability insurance of the Owner as secondary and noncontributory.

Prior to commencement of the Work, and thereafter upon renewal or replacement of each required policy of insurance, Contractor shall provide to the Owner a signed, original certificate of liability insurance (ACORD 25). Consistent with this Section 11.1, the certificate shall identify the types of insurance, state the limits of liability for each type of coverage, name the Owner a Consultants as Certificate Holder, provide that the general aggregate limit applies per project, and provide that coverage is written on an occurrence basis. Both the certificates and the endorsements must be received directly from either the Contractor's insurance agent or the insurance company. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, naming the Owner as an additional insured for claims made under the Contractor’s completed operations, and otherwise meeting the above requirements, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

3.84 Delete Section 11.1.4 and substitute the following:

11.1.4 A failure by the Owner either (i) to demand a certificate of insurance or written endorsement required by Section 11.1, or (ii) to reject a certificate or endorsement on the grounds that it fails to comply with Section 11.1 shall not be considered a waiver of Contractor's obligations to obtain the required insurance.

3.85 In Section 11.3.1, delete the first sentence and substitute the following:

Unless otherwise provided in the Contract Documents, the Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder’s risk “all-risk” or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis.

3.86 Delete the language of Section 11.3.1.2 and substitute the word “Reserved.”

3.87 Delete the language of Section 11.3.1.3 and substitute the word “Reserved.”
3.88 **Delete Section 11.3.2 and substitute the following:**

11.3.2 **BOILER AND MACHINERY INSURANCE**
The Contractor shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall both be named insureds.

3.89 **Delete Section 11.3.3 and substitute the following:**

11.3.3 **LOSS OF USE INSURANCE**
The Owner, at the Owner’s option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner’s property due to fire or other hazards, however caused. To the extent any losses are covered and paid for by such insurance, the Owner waives all rights of action against the Contractor for loss of use of the Owner’s property, including consequential losses due to fire or other hazards however caused.

3.90 **Delete Section 11.3.4 and substitute the following:**

11.3.4 If the Owner requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Contractor shall, if possible, include such insurance, and the cost thereof shall be charged to the Owner by appropriate Change Order.

3.91 **Delete the language of Section 11.3.5 and substitute the word “Reserved.”**

3.92 **Delete Section 11.3.6 and substitute the following:**

11.3.6 Before an exposure to loss may occur, the Contractor shall file with the Owner a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days’ prior written notice has been given to the Owner.

3.93 **Delete the first sentence of Section 11.3.7 and substitute the following:**

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 described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent the property insurance provided by the Contractor pursuant to this Section 11.3 covers and pays for the damage, except such rights as they have to proceeds of such insurance held by the Contractor as fiduciary.

3.94 **Delete the first sentence of Section 11.3.8 and substitute the following:**

A loss insured under the Contractor’s property insurance shall be adjusted by the Contractor as fiduciary and made payable to the Contractor as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10.

3.95 **Delete Section 11.3.9 and substitute the following:**

11.3.9 If required in writing by a party in interest, the Contractor as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Contractor’s duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Contractor shall deposit in a separate account proceeds so received, which the Contractor shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor.

3.96 **Delete Section 11.3.10 and substitute the following:**

11.3.10 The Contractor as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Contractor’s exercise of this power; if such objection is made, the dispute shall be resolved in the manner provided in the contract between the parties in dispute as the method of binding dispute resolution. The Contractor as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with a final order or determination issued by the appropriate authority having jurisdiction over the dispute.
Delete Section 11.4.1 and substitute the following:

11.4.1 Before commencing any services hereunder, the Contractor shall provide the Owner with Performance and Payment Bonds, each in an amount not less than the Contract Price set forth in Article 4 of the Agreement. The Surety shall have, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty". In addition, the Surety shall have a minimum "Best Financial Strength Category" of "Class V", and in no case less than five (5) times the contract amount. The Performance Bond shall be written on Form SE-355, "Performance Bond" and the Payment Bond shall written on Form SE-357, "Labor and Material Payment Bond", and both shall be made payable to the Owner.

Delete Section 11.4.2 and substitute the following:

11.4.2 The Performance and Labor and Material Payment Bonds shall:

.1 be issued by a surety company licensed to do business in South Carolina;
.2 be accompanied by a current power of attorney and certified by the attorney-in-fact who executes the bond on the behalf of the surety company; and
.3 remain in effect for a period not less than one (1) year following the date of Substantial Completion or the time required to resolve any items of incomplete Work and the payment of any disputed amounts, whichever time period is longer.

Add the following Sections 11.4.3 and 11.4.4:

11.4.3 Any bonds required by this Contract shall meet the requirements of the South Carolina Code of Laws and Regulations, as amended.
11.4.4 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

Delete Section 12.1.1 and substitute the following:

12.1.1 If a portion of the Work is covered contrary to the requirements specifically expressed in the Contract Documents, including inspections of work-in-progress required by all authorities having jurisdiction over the Project, it must, upon demand of the Architect or authority having jurisdiction, be uncovered for observation and be replaced at the Contractor’s expense without change in the Contract Time.

In Section 12.2.2.1, delete the words “and to make a claim for breach of warranty” at the end of the third sentence.

In Section 12.2.2.3, add the following to the end of the sentence:

unless otherwise provided in the Contract Documents.

Insert the following at the end of Section 12.2.4:

If, prior to the date of Substantial Completion, the Contractor, a Subcontractor, or anyone for whom either is responsible, uses or damages any portion of the Work, including, without limitation, mechanical, electrical, plumbing, and other building systems, machinery, equipment, or other mechanical device, the Contractor shall cause such item to be restored to "like new" condition at no expense to the Owner.

Delete Section 13.1 and substitute the following:

13.1 GOVERNING LAW

The Contract, any dispute, claim, or controversy relating to the Contract, and all the rights and obligations of the parties shall, in all respects, be interpreted, construed, enforced and governed by and under the laws of the State of South Carolina, except its choice of law rules.

Delete Section 13.2, including its Sub-Sections 13.2.1 and 13.2.2, and substitute the following:

13.2 SUCCESSORS AND Assigns

The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole, or in part, without written consent of the other and then only in accordance with and as permitted by Regulation 19-445.2180 of the South Carolina Code of Regulations, as amended. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.
3.106 Delete Section 13.3 and substitute the following:

13.3 WRITTEN NOTICE
Unless otherwise permitted herein, all notices contemplated by the Contract Documents shall be in writing and shall be deemed given:

.1 upon actual delivery, if delivery is by hand;
.2 upon receipt by the transmitting party of confirmation or reply, if delivery is by electronic mail, facsimile, telex or telegram;
.3 upon receipt, if delivery is by the United States mail.

Notice to Contractor shall be to the address provided in Section 8.3.2 of the Agreement. Notice to Owner shall be to the address provided in Section 8.2.2 of the Agreement. Either party may designate a different address for notice by giving notice in accordance with this paragraph.

3.107 In Section 13.4.1, insert the following at the beginning of the sentence:

Unless expressly provided otherwise,

3.108 Add the following Section 13.4.3:

13.4.3 Notwithstanding Section 9.10.4, the rights and obligations which, by their nature, would continue beyond the termination, cancellation, rejection, or expiration of this contract shall survive such termination, cancellation, rejection, or expiration, including, but not limited to, the rights and obligations created by the following clauses:

1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service;
3.5 Warranty
3.17 Royalties, Patents and Copyrights
3.18 Indemnification
7.6 Cost or Pricing Data
11.1 Contractor's Liability Insurance
11.4 Performance and Payment Bond
15.1.6 Claims for Listed Damages
15.1.7 Waiver of Claims Against the Architect
15.6 Dispute Resolution
15.6.5 Service of Process

3.109 Delete Section 13.6 and substitute the following:

13.6 INTEREST
Payments due to the Contractor and unpaid under the Contract Documents shall bear interest only if and to the extent allowed by Title 29, Chapter 6, Article 1 of the South Carolina Code of Laws. Amounts due to the Owner shall bear interest at the rate of one percent a month or a pro rata fraction thereof on the unpaid balance as may be due.

3.110 Delete the language of Section 13.7 and substitute the word “Reserved.”

3.111 Add the following Sections 13.8 through 13.16:

13.8 PROCUREMENT OF MATERIALS BY OWNER
The Contractor accepts assignment of all purchase orders and other agreements for procurement of materials and equipment by the Owner that are identified as part of the Contract Documents. The Contractor shall, upon delivery, be responsible for the storage, protection, proper installation, and preservation of such Owner purchased items, if any, as if the Contractor were the original purchaser. The Contract Sum includes, without limitation, all costs and expenses in connection with delivery, storage, insurance, installation, and testing of items covered in any assigned purchase orders or agreements. Unless the Contract Documents specifically provide otherwise, all Contractor warranty of workmanship and correction of the Work obligations under the Contract Documents shall apply to the Contractor’s installation of and modifications to any Owner purchased items.

13.9 INTERPRETATION OF BUILDING CODES
As required by Title 10, Chapter 1, Section 180 of the South Carolina Code of Laws, as amended, OSE shall determine the enforcement and interpretation of all building codes and referenced standards on state buildings. The Contractor shall refer any questions, comments, or directives from local officials to the Owner and OSE for resolution.
13.10 MINORITY BUSINESS ENTERPRISES
Contractor shall notify Owner of each Minority Business Enterprise (MBE) providing labor, materials, equipment, or supplies to the Project under a contract with the Contractor. Contractor’s notification shall be via the first monthly status report submitted to the Owner after execution of the contract with the MBE. For each such MBE, the Contractor shall provide the MBE’s name, address, and telephone number, the nature of the work to be performed or materials or equipment to be supplied by the MBE, whether the MBE is certified by the South Carolina Office of Small and Minority Business Assistance, and the value of the contract.

13.11 SEVERABILITY
If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

13.12 ILLEGAL IMMIGRATION
Contractor certifies and agrees that it will comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws and agrees to provide to the State upon request any documentation required to establish either: (a) that Title 8, Chapter 14 is inapplicable both to Contractor and its subcontractors or sub-subcontractors; or (b) that Contractor and its subcontractors or sub-subcontractors are in compliance with Title 8, Chapter 14. Pursuant to Section 8-14-60, "A person who knowingly makes or files any false, fictitious, or fraudulent document, statement, or report pursuant to this chapter is guilty of a felony and, upon conviction, must be fined within the discretion of the court or imprisoned for not more than five years, or both." Contractor agrees to include in any contracts with its subcontractors language requiring its subcontractors to (a) comply with the applicable requirements of Title 8, Chapter 14, and (b) include in their contracts with the sub-subcontractors language requiring the sub-subcontractors to comply with the applicable requirements of Title 8, Chapter 14. (An overview is available at www.procurement.sc.gov)

13.13 SETOFF
The Owner shall have all of its common law, equitable, and statutory rights of set-off.

13.14 DRUG-FREE WORKPLACE
The Contractor certifies to the Owner that Contractor will provide a Drug-Free Workplace, as required by Title 44, Chapter 107 of the South Carolina Code of Laws, as amended.

13.15 FALSE CLAIMS
According to the S.C. Code of Laws § 16-13-240, "a person who by false pretense or representation obtains the signature of a person to a written instrument or obtains from another person any chattel, money, valuable security, or other property, real or personal, with intent to cheat and defraud a person of that property is guilty" of a crime.

13.16 NON-INDEMNIFICATION:
Any term or condition is void to the extent it requires the State to indemnify anyone. It is unlawful for a person charged with disbursements of state funds appropriated by the General Assembly to exceed the amounts and purposes stated in the appropriations. (§ 11-9-20) It is unlawful for an authorized public officer to enter into a contract for a purpose in which the sum is in excess of the amount appropriated for that purpose. It is unlawful for an authorized public officer to divert or appropriate the funds arising from any tax levied and collected for any one fiscal year to the payment of an indebtedness contracted or incurred for a previous year. (§ 11-1-40)

3.112 Delete Section 14.1.1 and substitute the following:

14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 45 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

1 Issuance of an order of a court or other public authority having jurisdiction that requires substantially all Work to be stopped; or

2 An act of government, such as a declaration of national emergency that requires substantially all Work to be stopped.

3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents and the Contractor has stopped work in accordance with Section 9.7
3.113 Insert the following at the end of Section 14.1.3:

Any adjustment to the Contract Sum pursuant to this Section shall be made in accordance with the requirements of Article 7.

3.114 In Section 14.1.4, replace the word “repeatedly” with the word “persistently.”

3.115 Delete Section 14.2.1 and substitute the following:

14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials, or otherwise fails to prosecute the Work, or any separable part of the Work, with the diligence, resources and skill that will ensure its completion within the time specified in the Contract Documents, including any authorized adjustments;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the Contract Documents and the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

3.116 In Section 14.2.2, delete the parenthetical statement “, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action,” immediately following the word “Owner” in the first line.

3.117 In Section 14.2.4, replace the words “Initial Decision Maker” with the word “Architect”

3.118 Add the following Section 14.2.5:

14.2.5 If, after termination for cause, it is determined that the Owner lacked justification to terminate under Section 14.2.1, or that the Contractor’s default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Owner under Section 14.4.

3.119 Delete the second sentence of Section 14.3.2 and substitute the following:

Any adjustment to the Contract Sum made pursuant to this section shall be made in accordance with the requirements of Article 7.3.3.

3.120 Delete Section 14.4.1 and substitute the following:

14.4.1 The Owner may, at any time, terminate the Contract, in whole or in part for the Owner’s convenience and without cause. The Owner shall give written notice of the termination to the Contractor specifying the part of the Contract terminated and when termination becomes effective.

3.121 Delete Section 14.4.2 and substitute the following:

14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner’s convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work;

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders; and

.4 complete the performance of the Work not terminated, if any.

3.122 Delete Section 14.4.3 and substitute the following:

14.4.3 In case of such termination for the Owner’s convenience, the Contractor shall be entitled to receive payment for Work executed, costs incurred by reason of such termination, and any other adjustments otherwise allowed by the Contract. Any adjustment to the Contract Sum made pursuant to this Section 14.4 shall be made in accordance with the requirements of Article 7.3.3.

3.123 Add the following Sections 14.4.4, 14.4.5, and 14.5:

14.4.4 Contractor's failure to include an appropriate termination for convenience clause in any subcontract shall not (i) affect the Owner's right to require the termination of a subcontract, or (ii) increase the obligation of the Owner beyond what it would have been if the subcontract had contained an appropriate clause.
14.4.5 Upon written consent of the Contractor, the Owner may reinstate the terminated portion of this Contract in whole or in part by amending the notice of termination if it has been determined that:

.1 the termination was due to withdrawal of funding by the General Assembly, Governor, or Budget and Control Board or the need to divert project funds to respond to an emergency as defined by Regulation 19-445.2110(B) of the South Carolina Code of Regulations, as amended;

.2 funding for the reinstated portion of the work has been restored;

.3 circumstances clearly indicate a requirement for the terminated work; and

.4 reinstatement of the terminated work is advantageous to the Owner.

14.5 CANCELLATION AFTER AWARD BUT PRIOR TO PERFORMANCE
Pursuant to Title 11, Chapter 35 and Regulation 19-445.2085 of the South Carolina Code of Laws and Regulations, as amended, this contract may be canceled after award but prior to performance.

3.124 Insert the following sentence after the second sentence of Section 15.1.1:
A voucher, invoice, payment application or other routine request for payment that is not in dispute when submitted is not a Claim under this definition.

3.125 Delete Section 15.1.2 and substitute the following:

15.1.2 NOTICE OF CLAIMS
Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Architect. Such notice shall include sufficient information to advise the Architect and other party of the circumstances giving rise to the claim, the specific contractual adjustment or relief requested and the basis of such request. Claims by either party arising prior to the date final payment is due must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later except as stated for adverse weather days in Section 15.1.5.2. By failing to give written notice of a Claim within the time required by this Section, a party expressly waives its claim.

3.126 Delete Section 15.1.3 and substitute the following:

15.1.3 CONTINUING CONTRACT PERFORMANCE
Pending final resolution of a Claim, including any administrative review allowed under Section 15.6, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will issue Certificates for Payment in accordance with the initial decisions and determinations of the Architect.

3.127 Insert the following at the end of Section 15.1.5.1:
Claims for an increase in the Contract Time shall be based on one additional calendar day for each full calendar day that the Contractor is prevented from working.

3.128 Insert the following Sub-Sections at the end of Section 15.1.5.2:

.1 Claims for adverse weather shall be based on actual weather conditions at the job site or other place of performance of the Work, as documented in the Contractor's job site log.

.2 For the purpose of this Contract, a total of five (5) days per calendar month (non-cumulative) shall be anticipated as "adverse weather" at the job site, and such time will not be considered justification for an extension of time. If, in any month, adverse weather develops beyond the five (5) days, the Contractor shall be allowed to claim additional days to compensate for the excess weather delays only to the extent of the impact on the approved construction schedule and days the contractor was already scheduled to work. The remedy for this condition is for an extension of time only and is exclusive of all other rights and remedies available under the Contract Documents or imposed or available by law.

.3 The Contractor shall submit monthly with their pay application all claims for adverse weather conditions that occurred during the previous month. The Architect shall review each monthly submittal in accordance with Section 15.5 and inform the Contractor and the Owner promptly of its evaluation. Approved days shall be included in the next Change Order issued by the Architect. Adverse weather conditions not claimed within the time limits of this Subparagraph shall be considered to be waived by the Contractor. Claims will not be allowed for adverse weather days that occur after the scheduled (original or adjusted) date of Substantial Completion.
3.129 **Delete Section 15.1.6 and substitute the following:**

**15.1.6 CLAIMS FOR LISTED DAMAGES**

Notwithstanding any other provision of the Contract Documents, including Section 1.2.1, but subject to a duty of good faith and fair dealing, the Contractor and Owner waive Claims against each other for listed damages arising out of or relating to this Contract.

15.1.6.1 For the Owner, listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) costs suffered by a third party unable to commence work, (vi) attorney's fees, (vii) any interest, except to the extent allowed by Section 13.6 (Interest), (viii) lost revenue and profit for lost use of the property, (ix) costs resulting from lost productivity or efficiency.

15.1.6.2 For the Contractor, listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest, except to the extent allowed by Section 13.6 (Interest); (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waive as against the Owner. Without limitation, this mutual waiver is applicable to all damages due to either party’s termination in accordance with Article 14.

15.1.6.3 Nothing contained in this Section shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

3.130 **Add the following Section 15.1.7:**

**15.1.7 WAIVER OF CLAIMS AGAINST THE ARCHITECT**

Notwithstanding any other provision of the Contract Documents, including Section 1.2.1, but subject to a duty of good faith and fair dealing, the Contractor waives all claims against the Architect and any other design professionals who provide design and/or project management services to the Owner, either directly or as independent contractors or subcontractors to the Architect, for listed damages arising out of or relating to this Contract. The listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest; (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waive as against the Owner. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

3.131 **Delete the language of Sections 15.2, 15.3, and 15.4, including all Sub-Sections, and substitute the word “Reserved” for the deleted language of each Section and Sub-Section.**

3.132 **Add the following Sections 15.5 and 15.6 with their sub-sections:**

**15.5 CLAIM AND DISPUTES - DUTY OF COOPERATION, NOTICE, AND ARCHITECTS INITIAL DECISION**

15.5.1 Contractor and Owner are fully committed to working with each other throughout the Project to avoid or minimize claims. To further this goal, Contractor and Owner agree to communicate regularly with each other and the Architect at all times notifying one another as soon as reasonably possible of any issue that if not addressed may cause loss, delay, and/or disruption of the Work. If claims do arise, Contractor and Owner each commit to resolving such claims in an amicable, professional, and expeditious manner to avoid unnecessary losses, delays, and disruptions to the Work.

15.5.2 Claims shall first be referred to the Architect for initial decision. An initial decision shall be required as a condition precedent to resolution pursuant to Section 15.6 of any Claim arising prior to the date of final payment, unless 30 days have passed after the Claim has been referred to the Architect with no decision having been rendered, or after all the Architect’s requests for additional supporting data have been answered, whichever is later. The Architect will not address claims between the Contractor and persons or entities other than the Owner.

15.5.3 The Architect will review Claims and within ten days of the receipt of a Claim (1) request additional supporting data from the claimant or a response with supporting data from the other party or (2) render an initial decision in accordance with Section 15.5.5.
15.5.4 If the Architect requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Architect when the response or supporting data will be furnished or (3) advise the Architect that all supporting data has already been provided. Upon receipt of the response or supporting data, the Architect will render an initial decision in accordance with Section 15.5.5.

15.5.5 The Architect will render an initial decision in writing; (1) stating the reasons therefor; and (2) notifying the parties of any change in the Contract Sum or Contract Time or both. The Architect will deliver the initial decision to the parties within two weeks of receipt of any response or supporting data requested pursuant to Section 16.4 or within such longer period as may be mutually agreeable to the parties. If the parties accept the initial decision, the Architect shall prepare a Change Order with appropriate supporting documentation for the review and approval of the parties and the Office of State Engineer. If either the Contractor, Owner, or both, disagree with the initial decision, the Contractor and Owner shall proceed with dispute resolution in accordance with the provisions of Section 15.6.

15.5.6 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor’s default, the Owner may, but is not obligated to, notify the surety and request the surety’s assistance in resolving the controversy.

15.6 DISPUTE RESOLUTION

15.6.1 If a claim is not resolved pursuant to Section 15.5 to the satisfaction of either party, both parties shall attempt to resolve the dispute at the field level through discussions between Contractor’s Representative and Owner’s Representative. If a dispute cannot be resolved through Contractor’s Representative and Owner’s Representative, then the Contractor’s Senior Representative and the Owner’s Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than twenty-one days after such a request is made, to attempt to resolve such dispute. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute. The meetings required by this Section are a condition precedent to resolution pursuant to Section 15.6.2.

15.6.2 If after meeting in accordance with the provisions of Section 15.6.1, the Senior Representatives determine that the dispute cannot be resolved on terms satisfactory to both the Contractor and the Owner, then either party may submit the dispute by written request to South Carolina’s Chief Procurement Officer for Construction (CPOC). Except as otherwise provided in Article 15, all claims, claims, or controversies relating to the Contract shall be resolved exclusively by the appropriate Chief Procurement Officer in accordance with Title 11, Chapter 35, Article 17 of the South Carolina Code of Laws, or in the absence of jurisdiction, only in the Court of Common Pleas for, or in the absence of jurisdiction a federal court located in, Richland County, State of South Carolina. Contractor agrees that any act by the State regarding the Contract is not a waiver of either the State’s sovereign immunity or the State’s immunity under the Eleventh Amendment of the United State’s Constitution.

15.6.3 If any party seeks resolution to a dispute pursuant to Section 15.6.2, the parties shall participate in non-binding mediation to resolve the claim. If the claim is governed by Title 11, Chapter 35, Article 17 of the South Carolina Code of Laws as amended and the amount in controversy is $100,000.00 or less, the CPOC shall appoint a mediator, otherwise, the mediation shall be conducted by an impartial mediator selected by mutual agreement of the parties, or if the parties cannot so agree, a mediator designated by the American Arbitration Association (“AAA”) pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator.

15.6.4 Without relieving any party from the other requirements of Sections 15.5 and 15.6, either party may initiate proceedings in the appropriate forum prior to initiating or completing the procedures required by Sections 15.5 and 15.6 if such action is necessary to preserve a claim by avoiding the application of any applicable statutory period of limitation or repose.
15.6.5 SERVICE OF PROCESS
Contractor consents that any papers, notices, or process necessary or proper for the initiation or continuation of any claims, claims, or controversies relating to the Contract; for any court action in connection therewith; or for the entry of judgment on any award made, may be served on Contractor by certified mail (return receipt requested) addressed to Contractor at the address provided for the Contractor’s Senior Representative or by personal service or by any other manner that is permitted by law, in or outside South Carolina. Notice by certified mail is deemed duly given upon deposit in the United States mail.

3.133 Add the following Article 16:

ARTICLE 16  PROJECT-SPECIFIC REQUIREMENTS AND INFORMATION

16.1. Inspection Requirements: (Indicate the inspection services required by the Contract)

☐ Special Inspections are required and are not part of the Contract Sum. (see section 01400)
☒ Building Inspections are required and are not part of the Contract Sum. (see section 01400)

The inspections required for this Work are:
(Indicate which services are required and the provider)

☐ Civil:
☐ Structural:
☒ Mechanical:
☐ Plumbing:
☐ Electrical:
☐ Gas:
☐ Other (list):

Remarks:

16.1.1 Contractor shall schedule and request inspections in an orderly and efficient manner and shall notify the Owner whenever the Contractor schedules an inspection in accordance with the requirements of Section 16.1. Contractor shall be responsible for the cost of inspections scheduled and conducted without the Owner’s knowledge and for any increase in the cost of inspections resulting from the inefficient scheduling of inspections.

16.2 List Cash Allowances, if any. (Refer to attachments as needed. If none, enter NONE)

None

16.3. Requirements for Record Drawings, if any. (Refer to attachments as needed. If none, enter NONE)

See Specifications

16.4. Requirements for Shop Drawings and other submittals, if any, including number, procedure for submission, list of materials to be submitted, etc. (Refer to attachments as needed. If none, enter NONE)

See Specifications

16.5. Requirements for signage, on-site office or trailer, utilities, restrooms, etc., in addition to the Contract, if any. (Refer to attachments as needed. If none, enter NONE)

See Specifications

16.6. Requirements for Project Cleanup in addition to the Contract, if any. (Refer to attachments as needed. If none, enter NONE)

None

16.7. List all attachments that modify these General Conditions. (If none, enter NONE)

See General Requirements Section 01 10 00
SE-355
PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that (Insert full name or legal title and address of Contractor)

Name: __________________________
Address: __________________________

hereinafter referred to as “Contractor”, and (Insert full name and address of principal place of business of Surety)

Name: __________________________
Address: __________________________

hereinafter called the “surety”, are jointly and severally held and firmly bound unto (Insert full name and address of Agency)

Name: Medical University of South Carolina
Address: 97 Jonathan Lucas Street, MSC 190
Charleston, SC 29425-1900

hereinafter referred to as “Agency”, or its successors or assigns, the sum of __________________ ($___), being the sum of the Bond to which payment to be well and truly made, the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated ______________ entered into a contract with Agency to construct
State Project Name: ANDERSON HOUSE HVAC PIPING INSTALLATION
State Project Number: NA
Brief Description of Awarded Work, as found on the SE-330 or SE-332, Bid Form: Scope of work is to install new chilled water and hot water piping to the Anderson House from the Quad Building at MUSC.
in accordance with Drawings and Specifications prepared by (Insert full name and address of A-E)
Name: Echo Engineering, LLC
Address: 1514 Mathis Ferry Rd, Suite 215
Mt. Pleasant, SC 29464

which agreement is by reference made a part hereof, and is hereinafter referred to as the Contract.

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms stated herein, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

DATED this __________ day of __________, 2015

CONTRACTOR
By: __________________________
(Seal)
Print Name: __________________________
Print Title: __________________________
Witness: __________________________

SURETY
By: __________________________
(Seal)
Print Name: __________________________
Print Title: __________________________
Witness: __________________________

(Additional Signatures, if any, appear on attached page)
NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency for the full and faithful performance of the contract, which is incorporated herein by reference.

2. If the Contractor performs the contract, the Surety and the Contractor have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.

3. The Surety's obligation under this Bond shall arise after:  
3.1 The Agency has notified the Contractor and the Surety at the address described in paragraph 10 below, that the Agency is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If the Agency, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the Agency's right, if any, subsequently to declare a Contractor Default; or

3.2 The Agency has declared a Contractor Default and formally terminated the Contractor's right to complete the Contract.  
4. The Surety shall, within 15 days after receipt of notice of the Agency's declaration of a Contractor Default, and at the Surety's sole expense, take one of the following actions:
4.1 Arrange for the Contractor, with consent of the Agency, to perform and complete the Contract; or
4.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Agency for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Agency and the contractor selected with the Agency's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the Agency the amount of damages as described in paragraph 7 in excess of the Balance of the Contract Sum incurred by the Agency resulting from the Contractor Default; or
4.4 waive its right to perform and complete, arrange for completion, or obtain a new contractor, and:
4.4.1 After investigation, determine the amount for which it may be liable to the Agency and, within 60 days of waiving its rights under this paragraph, tender payment thereof to the Agency; or
4.4.2 Deny liability in whole or in part and notify the Agency, citing the reasons therefore.
5. Provided Surety has proceeded under paragraphs 4.1, 4.2, or 4.3, the Agency shall pay the Balance of the Contract Sum to either:
5.1 Surety in accordance with the terms of the Contract; or
5.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.
5.3 The balance of the Contract Sum due either the Surety or another contractor shall be reduced by the amount of damages as described in paragraph 7.
6. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond 15 days after receipt of written notice from the Agency to the Surety demanding that the Surety perform its obligations under this Bond, and the Agency shall be entitled to enforce any remedy available to the Agency.
6.1 If the Surety proceeds as provided in paragraph 4.4 and the Surety does not make such proper adjustments as directed by the Agency, the Agency has the right to perform the contract, in whole or in part, and the Agency shall be entitled to recover the cost of performance from the Surety, under paragraphs 4.4.1 or 4.4.2, as provided in paragraph 6.2 above.

6.2 Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the Dispute Resolution process defined in the Contract Documents and the laws of the State of South Carolina.
7. After the Agency has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Agency shall be those of the Contractor under the Contract, and the responsibilities of the Agency to the Surety shall those of the Agency under the Contract. To a limit of the amount of this Bond, but subject to commitment by the Agency of the Balance of the Contract Sum to mitigation of costs and damages on the Contract, the Surety is obligated to the Agency without duplication for:
7.1 The responsibilities of the Contractor for correction of defective work and completion of the Contract; and
7.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and
7.3 Damages awarded pursuant to the Dispute Resolution Provisions of the Contract. Surety may join in any Dispute Resolution proceeding brought under the Contract and shall be bound by the results thereof; and
7.4 Liquidated Damages, or if no Liquidated Damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. The Surety shall not be liable to the Agency or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Sum shall not be reduced or set-off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Agency or its heirs, executors, administrators, or successors.
9. The Surety hereby waives notice of any change, including changes of time, to the contract or to related subcontracts, purchase orders and other obligations.
10. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. Definitions
11.1 Balance of the Contract Sum: The total amount payable by the Agency to the Contractor under the contract after all proper adjustments have been made, including allowance to the Contractor of any amounts to be received by the Agency in settlement of insurance or other Claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.
11.2 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform the Contract or otherwise to comply with the terms of the Contract.
LABOR & MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that (Insert full name or legal title and address of Contractor)

Name: 
Address: 

hereinafter referred to as “Contractor”, and (Insert full name and address of principal place of business of Surety)

Name: 
Address: 

hereinafter called the “surety”, are jointly and severally held and firmly bound unto (Insert full name and address of Agency)

Name: Medical University of South Carolina
Address: 97 Jonathan Lucas Street, MSC 190
Charleston, SC 29425-1900

hereinafter referred to as “Agency”, or its successors or assigns, the sum of ________________ ($____), being the sum of the Bond to which payment to be well and truly made, the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated __________ entered into a contract with Agency to construct

State Project Name: ANDERSON HOUSE HVAC PIPING INSTALLATION
State Project Number: NA
Brief Description of Awarded Work, as found on the SE-330 or SE-332, Bid Form: Scope of work is to install new chilled water and hot water piping to the Anderson House from the Quad Building at MUSC.

in accordance with Drawings and Specifications prepared by (Insert full name and address of A-E)

Name: Echo Engineering, LLC
Address: 1514 Mathis Ferry Rd, Suite 215
Mt. Pleasant, SC 29464

which agreement is by reference made a part hereof, and is hereinafter referred to as the Contract.

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms stated herein, do each cause this Labor and Material Payment Bond to be duly executed on its behalf by its authorized officer, agent or representative.

DATED this __________ day of __________, 2015 BOND NUMBER ________________________

shall be no earlier than Date of Contract

CONTRACTOR
By: ______________________________ (Seal)
Print Name: ______________________________
Print Title: ______________________________
Witness: ______________________________

SURETY
By: ______________________________ (Seal)
Print Name: ______________________________
Print Title: ______________________________
Witness: ______________________________

(Attach Power of Attorney)

(Additional Signatures, if any, appear on attached page)
NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency to pay for all labor, materials and equipment required for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to the Agency, this obligation shall be null and void if the Contractor:
   2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants; and
   2.2 Defends, indemnifies and holds harmless the Agency from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract.

3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.

4. With respect to Claimants, and subject to the provisions of Title 29, Chapter 5 and the provisions of §11-35-3030(2)(c) of the SC Code of Laws, as amended, the Surety’s obligation under this Bond shall arise as follows:
   4.1 Every person who has furnished labor, material or rental equipment to the Contractor or its subcontractors for the work specified in the Contract, and who has not been paid in full therefore before the expiration of a period of ninety (90) days after the date on which the last of the labor was done or performed by him or material or rental equipment was furnished or supplied by him for which such claim is made, shall have the right to sue on the payment bond for the amount, or the balance thereof, unpaid at the time of institution of such suit and to prosecute such action for the sum or sums justly due him.
   4.2 A remote claimant shall have a right of action on the payment bond upon giving written notice by certified or registered mail to the Contractor within ninety (90) days from the date on which such person did or performed the last of the labor or furnished or supplied the last of the material or rental equipment upon which such claim is made.
   4.3 Every suit instituted upon a payment bond shall be brought in a court of competent jurisdiction for the county or circuit in which the construction contract was to be performed, but no such suit shall be commenced after the expiration of one year after the day on which the last of the labor was performed or material or rental equipment was supplied by the person bringing suit.
   5. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety’s expense take the following actions:
      5.1 Send an answer to the Claimant, with a copy to the Agency, within sixty (60) days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
      5.2 Pay or arrange for payment of any undisputed amounts.
      5.3 The Surety’s failure to discharge its obligations under this paragraph 5 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a claim. However, if the Surety fails to discharge its obligations under this paragraph 5, the Surety shall indemnify the Claimant for the reasonable attorney’s fees the Claimant incurs to recover any sums found to be due and owing to the Claimant.
   6. Amounts owed by the Agency to the Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the Contractor furnishing and the Agency accepting this Bond, they agree that all funds earned by the contractor in the performance of the Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Agency’s prior right to use the funds for the completion of the Work.
   7. The Surety shall not be liable to the Agency, Claimants or others for obligations of the Contractor that are unrelated to the Contract. The Agency shall not be liable for payment of any costs or expenses of any claimant under this bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
   8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
   9. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the Agency or the contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
   10. By the Contractor furnishing and the Agency accepting this Bond, they agree that this Bond has been furnished to comply with the statutory requirements of the South Carolina Code of Laws, as amended, and further, that any provision in this Bond conflicting with said statutory requirements shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
   11. Upon request of any person or entity appearing to be a potential beneficiary of this bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
   12. Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the laws of the State of South Carolina.

13. DEFINITIONS
   13.1 Claimant: An individual or entity having a direct contract with the Contractor or with a Subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms “labor, materials or equipment” that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the Contractor and the Contractor’s Subcontractors, and all other items for which a mechanic’s lien might otherwise be asserted.
   13.2 Remote Claimant: A person having a direct contractual relationship with a subcontractor of the Contractor or subcontractor, but no contractual relationship expressed or implied with the Contractor.
   13.3 Contract: The agreement between the Agency and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
CHANGE ORDER TO CONSTRUCTION CONTRACT

AGENCY: Medical University of South Carolina
PROJECT NAME: ANDERSON HOUSE HVAC PIPING INSTALLATION
PROJECT NUMBER: NA

This Contract is changed as follows: (Insert description of change in space provided below)

ADJUSTMENTS IN THE CONTRACT SUM:
1. Original Contract Sum: $  
2. Change in Contract Sum by previously approved Change Orders: $  
3. Contract Sum prior to this Change Order: $ 0.00 
4. Amount of this Change Order: $ 0.00 
5. New Contract Sum, including this Change Order: $ 0.00 

ADJUSTMENTS IN THE CONTRACT TIME:
1. Original Substantial Completion Date:  
2. Sum of previously approved increases and decreases in Days: Days 
3. Change in Days for this Change Order: Days 
4. New Substantial Completion Date:  

CONTRACTOR ACCEPTANCE:
BY: ________________________________ Date: ________________________________
(Signature of Representative)
Print Name: ________________________________

ARCHITECT RECOMMENDATION FOR ACCEPTANCE:
BY: ________________________________ Date: ________________________________
(Signature of Representative)
Print Name: ________________________________

AGENCY ACCEPTANCE AND CERTIFICATION:
BY: ________________________________ Date: ________________________________
(Signature of Representative)
Print Name: ________________________________

☐ Change is within Agency Construction Contract Change Order Certification of: $ ________
☐ Change is not within Agency Construction Contract Change Order Certification of: $ ________

Office of the State Engineer Authorization for change exceeding Agency Construction Contract Change Order Certification:

AUTHORIZED BY: ________________________________ DATE: ________________________________
(OSE Project Manager)
PROGRAM OBJECTIVES

1. MUSC/MUHA has adopted the following objectives:

   A. To provide maximum practical opportunities for Minority and Women's Business Enterprises (MWBEs) to participate as suppliers and contractors for our organization.

   B. To support the economic development of both small business enterprises and the minority community.

   C. To provide Minorities and Women equal opportunities for participation in Capital Projects construction (additions, renovations and new construction), procurement, professional services, and system-wide purchasing contracts.

   D. To provide procedures that will enable MUSC/MUHA to fulfill the goals of the State that are related to equal employment opportunities and affirmative actions in its construction contracts.

   E. To provide procedures for determining and monitoring MWBE participation and compliance with MWBE requirements stated in the contract documents. Also, to provide procedures for the solution of complaints concerning discrimination against any businesses holding contracts with the MUSC/MUHA.

   F. To evaluate and report to the MWBE Small and Minority Business Advocate and to MUSC/MUHA the results of contract activity, subject to the provisions of the MWBE Program.

2. In order to accomplish the objectives of the MWBE Program, the following specific goals have been established:

   A. To increase buying activities with Minority and Women's Enterprises that have the capability of providing construction services necessary for MUSC/MUHA operations.

   B. To actively and diligently seek out Minority and Women's Enterprises who have the potential of becoming a source of construction services.

   C. To promote awareness of the MWBE Program throughout MUSC/MUHA and the Community.

   D. To assist in the development of Minority and Women's Business Enterprises to insure that maximum opportunities are given to actively compete for construction opportunities with MUSC/MUHA.
SECTION I

GUIDELINES FOR M/WBE PARTICIPATION IN CONSTRUCTION SERVICES

CONSTRUCTION

These guidelines are established to accomplish the goal of providing for minority participation in Single and Multi-Prime capital construction contracts. The Medical University of South Carolina shall have a verifiable percentage goal of participation by Minority and Women’s businesses in the total value of work for each project for which a contract is awarded. These guidelines are published to accomplish that end.

ITEM 1:

INTENT

It is the intent of these guidelines that the Medical University of South Carolina and the contractors and subcontractors performing construction contracts for the Medical University of South Carolina shall cooperate, and in good faith, do all things legal, proper and reasonable to achieve the verifiable goal of 12% for participation by Minority and Women’s businesses in each construction project. Nothing contained in these guidelines shall be considered to require awarding authorities to award contracts or to make purchases of materials or equipment from M/WBE contractors who do not submit the lowest responsive responsible bid or bds.

ITEM 2:

DEFINITIONS

1. **Affirmative Action** - A plan, or specific measurable steps, taken by an agency, business or individuals to fully involve Minority Business Enterprises and Women’s Business Enterprises in contracts and programs and to assure non-discrimination and equal opportunities in the performance of work, contracts, or any elements of a project administered by MUSC/MUHA Minority/Women’s Business Enterprise Program.

2. **Bidder/Participant/Offeror** - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

3. **Contract** - A mutually-binding legal document which defines a business relationship or any modification at the level of performance which obligates the seller to furnish supplies, equipment, materials or services, knowledge in performing construction and procurements, and obligating the buyer to pay for services.

4. **Contractor** - Any person, firm, partnership, corporation, association, or joint venture that has been awarded a contract purchase or service agreement at any level with MUSC/MUHA or that has contracted with the Owner to perform construction work or repair.

5. **Discrimination** - Any action that distinguishes, differentiates, separates, or segregates one person or group from another, solely on the basis of age, race, religion, color, sex, national origin, handicap or veteran's status.

6. **Goal** - An objective, expressed numerically to evaluate the type and amount of contract awards and performance of Minority- and Women-owned business enterprises.

7. **Good-Faith Effort** - All activity performed by bidders to encourage the participation of minority and women’s enterprises (M/WBE) in contracts covered under this plan.

8. **Joint Venture** - A legal merger of two or more businesses (separately-owned firms) for the purpose of submitting a single bid, to carry out a single business enterprise for profit, for which purpose they combine their property, capital, efforts, skills or knowledge.

9. **MUSC** – Medical University of South Carolina
10. **MUHA** – Medical University Hospital Authority

11. **Minority (MBE)** - a person who is a citizen or lawful permanent resident of the United States and who is:
   (a) *African-American*, that is, a person having origins in any of the original racial groups in Africa;
   (b) *Hispanic*, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
   (c) *Native-American*, that is, a person having origins in any of the original peoples of North America; or
   (d) *Asian-American*, that is, persons having origin in any of the countries of the Far East, Southeast Asia, or the Indian areas.

12. **Minority or Women’s Business Enterprises-M/WBE** - a business enterprise owned and controlled at a minimum of 51% by one or more members of a group defined as a minority or as women. A business certified as a minority- or woman-owned enterprise will show evidence of ownership and management interests and the daily business operations are real and continuing, not created solely to meet the M/WBE requirements.

13. **Owner** – Medical University of South Carolina/Medical University Hospital Authority

14. **Owned and Controlled** - A business which is (1) a sole proprietorship legitimately owned by an individual who is a member of a minority and/or female, (2) a partnership or joint venture controlled by minorities and/or females, and in which at least 51% of the beneficial ownership interests legitimately are held by minorities and/or females, or (3) a corporation or other entity controlled by minorities and/or females, and in which at least 51% of the voting interests are legitimately held by minorities and/or females. In addition, these persons must control the management and operation of the business on a day-to-day basis.

15. **Subcontractor** - A firm under contract with the prime contractor for supplying materials or labor and materials and/or installations. The subcontractor may or may not provide materials in his subcontract. Work subcontracted in an emergency and which could not have been anticipated is excluded as a part of this program.

16. **Verifiable goal** – For purposes of the Single-Prime contracts, the advertising authority has adopted written guidelines specifying the actions that the prime contractor should consider taking to ensure a good-faith effort in the recruitment and selection of minority and women’s businesses for participation in contracts awarded; the required actions must be documented in writing by the contractor to the appropriate awarding authority.

**PART 3:**

**RESPONSIBILITIES**

1. **Medical University of South Carolina/Medical University Hospital Authority - Owner**

   MUSC/MUHA under the Single and Multi Prime contract system will be responsible for the following:

   (a) For contracts in excess of $500,000 estimated cost, notify Minority and Women’s Business firms within twenty-one (21) days prior to the bid opening through means of advertising in the *South Carolina Business Opportunities* of the opportunities. Advertisements will include:
      1. Project description and location;
      2. Locations where bidding documents may be reviewed;
      3. Name of a representative of the Owner who can be contacted during the advertising period to advise who the prospective bidders are;
      4. Date, time and location of the bid opening;
      5. Date, time and location of pre-bid conference, if scheduled. The twenty-one day advance time period may be reduced to ten days for contracts in the range of $100,000 to $500,000 in the estimated cost.

   (b) The pre-bid conference, if scheduled, is conducted by the representative of the Owner, and will be open to all known and anticipated prime contractors, subcontractors, material suppliers, and other bidders.
2. **Prime Contractor, Bidder or Offeror**

Prime Contractors under the Single and Multi-Prime contract system will be responsible for the following:

(a) Attend the scheduled mandatory pre-bid conference.
(b) Identify or determine those work areas of a subcontract where M/WBEs may have an interest in performing subcontract work.
(c) Submit, with the first application for payment, a description of the portion of the work to be executed by M/WBEs expressed as a percentage of the total contract price.
(d) If the Contractor elects to use a M/WBE firm that is not certified by the Governor’s Office of Small and Minority Business Assistance (OSMBA) the Contractor shall encourage the subcontractor to submit an application for certification within thirty (30) days of signing the Letter of Intent (Appendix II). If the firm does not submit an application within the specified time frame or fails to meet the certification criteria, the contract amount with that M/WBE firm will not be considered as M/WBE participation.
(e) Upon being named the apparent low bidder, the Bidder shall submit to the Project Manager their good faith backup documentation if they have not met their M/WBE goal.
(f) If, during the construction of a project, additional subcontracting opportunities become available, the prime or general contractors must make good-faith efforts to solicit sub-bids from M/WBEs.

3. **M/WBE Responsibilities**

M/WBE firms do not have to be certified to be listed on the bid documents; however, M/WBE firms that have been awarded contracts will not be credited towards MUSC/MUHA’s M/WBE Program unless they are certified with the Governor’s Office of Small and Minority Business Assistance (OSMBA).

(a) M/WBEs should make every effort to establish contacts and relationships with contractors for potential future business, including attending pre-bid conferences and subscribing to industry and trade journals.

(b) In addition, M/WBEs who are contacted by Owners or Bidders should respond promptly whether or not they wish to submit a bid. If an M/WBE firm is listed as a subcontractor or supplier, they will be responsible for completing a Letter of Intent (Appendix II) in a timely manner and returning it to the Prime Contractor.

(c) M/WBE who are not certified at the time the firm commits to provide services, should apply for certification with the Governor’s Office of Small and Minority Business Assistance (CSMBA) within thirty (30) days. If the M/WBE firm fails to submit an application within the specified time frame or if the M/WBE firm is not granted certification by the Certification Committee, that M/WBE firm’s contract dollars will not be counted as M/WBE participation.
SECTION II

M/WBE CONTRACT PROVISIONS

ITEM 1: PROVISIONS FOR CONSTRUCTION

A. APPLICATION:

The requirements of the MUSC/MUHA Minority and Women's Business Enterprise (M/WBE) Provisions and Guidelines are hereby made a part of these contract documents. The requirements shall apply to all contractors regardless of ownership. Copies of the M/WBE Program may be obtained from the M/WBE Administrator, Engineering and Facilities, 97 Jonathan Lucas Street, P.O. Box 250190, Charleston, SC 29425.

B. M/WBE SUBCONTRACT GOALS:

The goals for participation by M/WBE as subcontractors on this project have been set at 12%.

The Bidder shall provide documented proof, with the first application for payment, in the form of Appendix I, M/WBE Utilization Commitment Form the percentage of M/WBE participation. Submit signed copies of Appendix II - Letters Of Intent to Perform as a Subcontractor, to the Project Manager.

C. COMPLIANCE DOCUMENTATION:

If the M/WBE subcontract goals are not achieved, the Bidder shall provide the following documentation to the Project Manager with the first application for payment:

1. M/WBE Utilization Commitment (Appendix I)

2. With the first pay application, the Bidder shall provide to the Project Manager signed Letters of Intent to Perform as a Subcontractor (Appendix II) for the M/WBE subcontractors listed on Appendix I.

3. After review of the Bidder's Good Faith Efforts, the Bidder may request and be granted a Waiver of the M/WBE goals that have not been met for that particular project. A Waiver may be granted upon review of the Bidder's documentation and determination that, in fact, a Good Faith Effort has been put forth.

NOTE: If the Bidder provides sufficient evidence on the M/WBE Utilization Commitment (Appendix I) that the goals have been met, or awards all subcontracts to M/WBEs, the Good Faith Efforts Documentation as listed above in #3 may not be required.
APPENDIX I
MWBE UTILIZATION COMMITMENT FORM
FOR CONSTRUCTION

We, ____________________________________________, do certify that on the ________________________
(Bidder) ________________________ (Project Name)
__________________________________________________ we will expend a minimum of ____
(Project Number) ________________________ (Dollar Amount of Bid) %
of the total dollar amount of the contract with Minority/Women Business Enterprises. MWBEs will be employed as construction
subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms
listed below.

If the bidder intends to subcontract, this form must be completed regardless of the amount of MWBE participation attained.

<table>
<thead>
<tr>
<th>NAME OF FIRM</th>
<th>PHONE NUMBER</th>
<th>MBE OR WBE</th>
<th>Description of Work</th>
<th>Dollar Value</th>
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The undersigned will enter into a formal agreement with Minority/Women's Firms for work listed in this schedule conditional upon
execution of a contract with the MUSC/MUHA.

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

Date: __________________________

(Name & Phone No. of Authorized Officer)

Signature: __________________________

Title: __________________________

APPENDIX I OR APPENDIX II MUST BE SUBMITTED WITH THE FIRST APPLICATION FOR PAYMENT

MUSC/MUHA
Rev. 10/14/08
APPENDIX II
LETTER OF INTENT
TO
PERFORM AS A
SUBCONTRACTOR OR SUBCONSULTANT
(PROVIDE MATERIALS OR/&_ SERVICES)

PROJECT: ____________________________________________
(Project Name)

TO: ___________________________________________________
(Name of Prime Bidder)

The undersigned intends to perform work in connection with the above project as

_____ Minority Business Enterprise  _____ Women's Business Enterprise

_____ The M/WBE status of the undersigned is certified by the Governor's Office of Small and Minority Business Assistance. Our M/WBE certification number is ______________________.

_____ The M/WBE status of the undersigned is not certified by the Governor's Office of Small and Minority Business Assistance. Our application was submitted on ______________________.

The undersigned is prepared to perform the following described work or provide materials or services in connection with the above project (specify in detail particular work items, materials or services to be performed or provided) at the following price:

______________________________________________________

You have projected the following commencement date for such work, and the undersigned is projecting completion of such work as follows:

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<th>Items</th>
<th>Projected Commencement Date</th>
<th>Projected Completion Date</th>
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Subcontracting at any tier must be reported and is subject to all M/WBE compliance requirements. This form shall be used for M/WBE subcontracting at any level.

Date: _____________________________
(Name & Phone No. of M/WBE Company)

______
(Name & Title of Authorized Office)

______
(Signature)

THE PRIME CONTRACTOR MUST GET THIS FORM COMPLETED BY THE M/WBE SUBCONTRACTORS

MUSC/MUHA

Rev. 10/14/08
APPENDIX III  
MWBE DOCUMENTATION OF CONTRACT PAYMENTS FORM

Prime Contractor: ____________________________________________________________
Address & Phone: ____________________________________________________________
Project Name: ______________________________________________________________
Pay Application #: __________________________ Period: ____________________________

The following is a list of payments made to Minority and Women Business Enterprises certified by the Governor's Office of Small and Minority Business Assistance on this project for the above mentioned period.

<table>
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<tr>
<th>MWBE FIRM NAME</th>
<th>INDICATE MBE OR WBE</th>
<th>OSMB A CERTIFICATION</th>
<th>AMOUNT TO BE PAID THIS PERIOD</th>
<th>TOTAL PAYMENTS TO DATE</th>
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Date: __________________________ Name of Authorized Officer

Signature

Title

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT
NOTE: THE LANGUAGE USED IN THIS DOCUMENT DOES NOT CREATE AN EMPLOYMENT CONTRACT BETWEEN THE EMPLOYEE AND THE MEDICAL UNIVERSITY OF SOUTH CAROLINA (MUSC). MUSC RESERVES THE RIGHT TO REVISE THE CONTENT OF THIS DOCUMENT, IN WHOLE OR IN PART. NO PROMISES OR ASSURANCES, WHETHER WRITTEN OR ORAL, WHICH ARE CONTRARY TO OR INCONSISTENT WITH THE TERMS OF THIS PARAGRAPH CREATE ANY CONTRACT OF EMPLOYMENT.

I. PURPOSE

MUSC is committed to promoting a healthy, tobacco-free environment for its employees, faculty, students, visitors and patients. The purpose of this policy is to provide a healthy environment, minimize the negative effects of passive smoke and tobacco use, maximize fire safety and promote wellness and good health habits within all MUSC facilities, including MUSC affiliates, and the surrounding campus.

II. POLICY

A. Covered Individuals

The provisions of this policy shall apply to all employees (including faculty and staff), patients, visitors, students, volunteers, contractors and vendors unless otherwise noted.
B. **Use of Tobacco Products**

The use of any tobacco product is prohibited in all buildings, grounds and spaces either leased or owned by the Medical University. The Human Resources Management *Policy No. 49, Tobacco-Free Campus*, includes, but is not limited to, offices, classrooms, laboratories, elevators, stairwells, restrooms, shuttle buses, shuttle bus stops, sidewalks, parking areas, meeting rooms, hallways, lobbies, and other common areas. The use of tobacco products in University owned, operated or leased vehicles is prohibited. Use of tobacco products is also prohibited in personal vehicles parked on MUSC property. MUSC also discourages the use of tobacco products by staff or visitors on properties adjacent to the campus.

C. **List of Tobacco Products**

Tobacco products include, but are not limited to, cigarettes, cigars, pipes, chewing tobacco, e-cigarettes and other smokeless tobacco products.

D. **Related Issues**

Employees, students, volunteers, contractors and vendors are expected to adhere to professional standards of appearance and not have an odor of tobacco products on their clothing or person.

III. **INFORMATION AND PROCEDURE**

A. **Faculty/Staff/Volunteers**

1. Faculty, staff and volunteers are expected to comply with the Tobacco-Free Campus Policy and assist with sharing information about the policy.

2. New employees and volunteers will be informed of the Tobacco-Free Campus Policy during orientation.

3. Enforcement of the policy rests with the appropriate supervisory staff, deans, department heads and administrative officials.

4. When employees or volunteers observe violations of the policy, they should politely remind the offender of the policy and request that they dispose of tobacco materials.
5. If the employee or volunteer continues to violate the policy, the location and time of the violation should be reported to the appropriate supervisory staff, dean, department head or administrative official. Human Resources Employee Relations may also be contacted to report violations.

6. Violation patterns will be accessed and appropriate action initiated. Employees who are found to be in violation will be disciplined in accordance with the Human Resources Policy No. 45, Disciplinary Action. Action may range from written reprimand to termination. Refer to specific guidelines as outlined by MUSC, MUHA and UMA.

B. Patients

1. Faculty, staff and clinical staff with patient care responsibilities are responsible for communicating and ensuring compliance with the Tobacco-Free Campus Policy.

2. Upon admission/check-in, patients will be verbally informed of the policy and a copy will be provided upon request.

3. Patients violating MUSC’s policy will be asked to dispose of tobacco materials.

4. Tobacco replacement therapies, i.e. nicotine patch, nicotine gum, etc., may be prescribed by the patient’s physician.

C. Visitors

1. Visitors will be informed of the policy and asked to comply while they are on campus.

2. Signage will be posted throughout MUSC’s buildings and grounds; stating this facility is a tobacco-free campus.

3. All employees and volunteers are encouraged to assist with the education of visitors regarding the policy, using policy information cards, which will be made available.

4. Employees are expected to help enforce the policy with visitors by requesting that they dispose of tobacco materials and respect MUSC’s healthcare mission and tobacco-free campus.
5. If a visitor is observed repeatedly violating the policy after being advised of the policy, staff should note the location and time of the violation and contact their respective manager, Department of Public Safety or Medical Center Safety and Security, or Human Resources.

D. Students

1. New students will be informed of the Tobacco-Free Campus Policy during orientation.

2. Enforcement of the policy rests with the respective Dean’s office.

3. When students observe violations of the policy, they should remind their fellow students of the policy and ask them to dispose of the tobacco materials.

4. If the student continues to violate the policy, the location and time of the violation should be reported to the appropriate Dean’s office.

5. Violation patterns will be assessed and appropriate action initiated.

6. Affiliation agreements will include the Tobacco-Free Campus Policy so that students from other schools will be advised of the policy.

E. Contractors/Vendors

1. A provision will be inserted in all contracts, e.g. construction and/or maintenance, to prohibit the employees of contractors/vendors from using tobacco materials on property owned or leased by MUSC.

2. Failure by the contractor/vendor or their employees to comply with the provisions of this policy could result in the termination of the contract.

IV. ENFORCEMENT

A. The monitoring and enforcement of this policy is the responsibility of ALL MUSC/MUHA/UMA employees, students and volunteers. Each individual should consistently and politely bring any infraction of this policy to the attention of the person or persons observed violating the policy.
B. The MUSC Department of Public Safety and Medical Center Safety and Security will assist in the enforcement of this policy by reporting violations to the appropriate manager or supervisor. Employees are also expected to assume leadership roles by adhering to the policy provisions and by reminding others who aren’t in compliance of the policy provisions.

C. MUSC will provide Tobacco-Free Campus Policy information cards to facilitate the education and enforcement of the policy.

V. RESOURCES

MUSC will offer resources and support to tobacco users in abstaining from tobacco use on campus and in supporting users who desire to quit using tobacco. Smoking cessation classes and other tobacco education related resources or programs will be offered periodically for MUSC employees. Many of these programs are offered at little to no cost. Additional resources are outlined on the Tobacco-Free Campus website.

VI. EXCEPTIONS

Individuals enrolled in smoking research and/or treatment programs are permitted to smoke in designated smoking areas that are physically separated from care, treatment and services areas) upon approval. If the Medical Center decides that patients may smoke in specific circumstances, it will designate smoking areas that are physically separated from care, treatment and services areas.

<table>
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<tr>
<th>Approved by</th>
<th>Information Contact</th>
<th>Approved</th>
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<tr>
<td>Lisa P. Montgomery</td>
<td>Director of Human Resources Management</td>
<td>November, 2011</td>
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<tr>
<td>Vice President for Finance &amp; Administration</td>
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<td>Effective March 1, 2012</td>
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</table>
KEY:
- MUSC Tobacco-Free Campus
- MUSC Tobacco-Free streets and sidewalks
- City of Charleston Smoke-Free Medical District streets and sidewalks
- Roper Hospital Tobacco-Free Campus
IRAN DIVESTMENT ACT OF 2014
(S.C. Code Ann. §§ 11-57-10, et seq.)

The Iran Divestment Act List is a list published by the South Carolina Budget and Control Board pursuant to Section 11-57-310 that identifies persons engaged in investment activities in Iran. Currently, the list is available at the following URL: [http://procurement.sc.gov/PS/PS-iran-divestment.phtm](http://procurement.sc.gov/PS/PS-iran-divestment.phtm). Section 11-57-310 requires the government to provide a person ninety days written notice before he is included on the list. The following representation, which is required by Section 11-57-330(A), is a material inducement for the State to award a contract to you.

I, the official named below, certify I am duly authorized to execute this certification on behalf of the vendor identified below, and, as of the date of my signature, the vendor identified below is not on the current Iran Divestment Act List. I further certify that I will notify the Procurement Officer immediately if, at any time before award of a contract, the vendor identified below is added to the Iran Divestment Act List.

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<tr>
<th>Vendor Name (Printed)</th>
<th>Taxpayer Identification No.</th>
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<th>By (Authorized Signature)</th>
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<th>Date Executed</th>
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List Date: January 5, 2015

Entities Ineligible to Contract with the State of South Carolina or any Political Subdivision of the State per the Iran Divestment Act of 2014, S.C. Code Ann. §§ 11-57-10, et seq.

1. Abadan Petrochemical Co.
2. Aban Offshore Ltd.
3. Agiba Petroleum Co.
5. Arvand Oil & Gas
7. Bharat Petroleum Corporation Ltd.
8. China National Petroleum Corp. (CNPC)
9. China Petroleum & Chemical Corp
10. Cosmo Oil Company Ltd
11. Dragon Oil Plc
12. Esfahan Oil Refining Co.
13. Essar Oil Ltd.
14. Fanavaran Petrochemical Co
15. Farabi Petrochemical Co.
16. Gail (India) Ltd.
17. Gubre Fabrikalari T.A.S.
18. Hyundai Heavy Industries
19. Idemitsu Kosan Co.Ltd
20. Indian Oil Corporation Ltd.
21. JX Holdings, Inc.
22. Koc Holding A.S.
23. Maire Tecnimont S.p.A.
24. Mangalore Refinery & Petrochemicals Ltd.
25. Mitsubishi Corporation
26. Mitsui & Co. Ltd
27. National Iranian Oil Co.
29. Oil & Natural Gas Corporation Ltd.
30. Pardis Petrochemical Co.
31. Pars Oil Co.
32. Parsian Oil and Gas Development Co.
33. PetroChina Co. Ltd.
34. Royal Dutch Shell Plc
35. Sepehr Energy
36. Shiraz Petrochemical Co.
37. Showa Shell Sekiyu K K
38. Tabriz Oil Refining Company
39. Total S.A.
40. Toyota Tsusho Corporation
41. Tupras Turkiye Petrol Rafinerileri AS

Contact irandivestment@mmo.sc.gov with questions regarding this list.
PART 1 - GENERAL

1.01 PROJECT DESCRIPTION
A. Scope of work is to install new chilled water and hot water piping to the Anderson House from the Quad Building at MUSC.

1.02 DRAWING LIST
A. See drawing cover page.

1.03 QUESTIONS (PRIOR TO BID)
A. Contractor shall submit all questions in written form to Mike Liddle (ECHO Engineering, LLC) at mike@echoengr.com. All questions are due 6 DAYS PRIOR TO BID OPENING DATE. All questions will be addressed in the final addendum.

1.04 PRE-BID SITE VISITS
A. Contractor shall have opportunities to visit the site by appointment only. Contractor must provide 48 hour notice to the Owner for any site visit. Coordinate site visits with Dwayne McMillan via email (mcmillde@musc.edu).

1.05 EQUIPMENT TO BE REMOVED AND RETURNED TO OWNER
A. NONE

1.06 WORK TO BE PROVIDED BY OWNER
A. Owner will not provide any equipment.

1.07 WORK RESTRICTIONS
A. Work schedule: Contractor shall be allowed to work anytime 24 hours a day 7 days a week to complete work required.
B. Lay down area
   1. To be determined by the MUSC in prebid.
      a. Hours of use shall not interfere with the building’s daily operations. Work shall not impede on private parking access.
C. Work that will require prior written prior approval:
   1. All noisy work that may disrupt the University's ability to operate the building shall be scheduled 14-days in advance with written approval prior beginning work.
2. Any work that requires a service interruption. This includes but not limited to power, steam, chilled water, gas, air conditioning, etc. Written prior approval shall be required in advance (14-days min) of interrupting utility.

3. The notification shall include nature of the work, time & date, and duration of disruption.

1.08 PROJECT MEETINGS

A. Meeting Schedule
   1. Construction Meeting shall be held weekly during construction. Owner, A/E and Contactor shall coordinate an alternative meeting schedule as necessary.
   2. Meeting location shall be on site or a location agreed upon.
   3. Pre-Construction shall be held within 10 days after the owner has issued the notice to proceed.

B. Meeting Agenda
   1. General agenda shall include but not limited to safety, schedule, progress of work, organization of work, job site cleanliness, etc.
   2. Contractor shall have at the meeting at a minimum the project manager and superintend. Contractor shall have the subcontractor available on “as-needed” bases.

C. Meeting minutes:
   1. The Contractor will compile minutes of each project meeting and will furnish copies to the Architect/Engineer via email in word format. The A/E shall review and revise the meeting minutes and distribute the revised contractor minutes to the contractor and any changes to list. Recipients of copies may make and distribute such other copies as they wish. Meeting minutes shall include a complete synopsis of all discussions, decisions, and/or problems being encountered on the project, as well as an update of the schedule.

1.09 SAFETY

A. In addition to any detailed requirements, Contractor shall comply with all federal and state standards and guidelines. The tunnel is a confined space so all confined space entry requirements shall be met by the contractor at all times.

1.10 PROTECTION AND CLEANING:

A. Equipment and materials shall be carefully handled, properly stored, and adequately protected to prevent damage before and during installation, in accordance with the manufacturer’s recommendations. Damaged or defective items in the opinion of the Engineer shall be replaced.

B. Protect all finished parts of equipment, such as shafts and bearings where accessible, from rust prior to operation by means of protective grease coating and wrapping. Close pipe openings
with caps or plugs during installation. Tightly cover and protect fixtures and equipment against
dirt, water, chemical, or mechanical injury. At completion of all work thoroughly clean fixtures,
exposed materials and equipment.

1.11 WORK IN EXISTING BUILDING:

A. Make alterations to existing utilities at times that will least interfere with normal operation of the
facility. Provide Owner with a minimum of 10 working days advance notice prior to performing
work.

B. If cutting is required contractor shall cut openings through existing masonry and reinforced
concrete as directed using diamond core drills or saw cutting. Use of pneumatic hammer type
drills, impact type electric drills, and hand or manual hammer type drills, will be permitted only
with approval of the Engineer. Locate openings that will least effect structural slabs, columns,
ribs or beams. Do not cut structural framing, walls, floors, decks and other members intended to
withstand stress, except with the Engineer’s written authorization. Authorization will be granted
only where there no other reasonable method for completing the scope of work, and where the
proposed cutting clearly does not materially weaken the structure.

1.12 REQUEST FOR SUBSTITUTION:

A. Requests for written approval to substitute materials or equipment considered by the Contractor
as equal to those specified must have been submitted for approval ten (10) calendar days prior
to bid opening date to the Owner. Requests must have been accompanied by samples,
descriptive literature, and engineering information as necessary to fully identify and allow
appraisal of the product. Requests must have been made in writing. If equipment size is
different coordination drawing may be required prior to approval.

1.13 EQUIPMENT STARTUP

A. Start up equipment as described in specifications. Verify that vibration is within specified
tolerance prior to extended operation. Adjust and coordinate the timing of mechanical system
start-ups with seasonal variations, so that demonstration and testing of specified performance
can be observed and recorded. Exercise proper care in off-season start-ups to ensure that
systems and equipment will not be damaged by the operation.

1.14 OPERATING AND PERFORMANCE TESTS

A. At the time of mechanical work closeout, check each item in each system to determine that it is
set for proper operation. Operate each system in a test run of appropriate duration to
demonstrate compliance with performance requirements. During or following test runs, make
final corrections or adjustments of system to refine and improve performances wherever
SECTION 01 10 00

SUMMARY

possible, including noise and vibration reductions, elimination of hazards, better response of
controls, signals and alarms, and similar system performance improvements. Provide testing or
inspection devices as may be requested for Engineer's observation of actual system
performances. Demonstrate that controls and items requiring service or maintenance are
accessible. Test run shall be scheduled to coincide with Engineer's final inspection of the
mechanical work.

B. Should evidence of malfunction in any tested system, or piece of equipment or component part
thereof, occur during or as a result of tests, make proper corrections, repairs or replacements,
and repeat tests at no additional cost to the Owner.

END OF SECTION
PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The work specified in this section includes planning, scheduling and reporting required by the CONTRACTOR. It is expressly understood and agreed that the time of beginning, the rate of progress, and the time of completion of the work are essential elements of this CONTRACT.

B. The Project Control Schedule (PCS) shall be prepared and maintained by the CONTRACTOR as described in this section.

C. The PCS shall be the CONTRACTOR’S working schedule and will be used by the CONTRACTOR to plan, organize, and execute the work, record and report actual performance and physical progress, and to show how the CONTRACTOR plans to complete all remaining work as of the beginning of each progress report period.

D. In addition, the PCS shall provide the OWNER with a tool to monitor and follow the progress of all phases of the work. The PCS shall comply with the various limits imposed by the scope of the work, contractually specified milestones and completion dates included in the contract.

E. The PCS shall be a Critical Path Method (CPM) schedule.

F. The PCS must clearly show the sequence and interdependence of activities required for complete performance of the work, beginning with the Contract Start Date (CSD) and concluding with the Contract Completion Date (CCD).

1.02 SUBMITTALS:

A. Construction schedule: Within 10 calendar days after the Contractor has received the Owner's Notice to Proceed, submit one reproducible copy and four prints of a construction schedule.

B. Periodic revisions and reports: Submit four prints of the construction schedule updated along with the monthly payment request.

1.03 PERIODIC REVISIONS AND REPORTS

A. Provide written narrative summary of revisions causing delay in the program, and an explanation of corrective actions taken or proposed.

B. REVISIONS: Make only those revisions to approved construction schedule as are approved in advance by the Owner.

END OF SECTION
PART 1 - GENERAL

1.01 SCOPE

A. The following is a list of the information which will be required to be submitted to the Engineer by the Contractor with a letter of transmittal identifying each item, as specified per the drawings and specifications. One electronic copy of all required documents. Electronic copies shall be submitted on CD and labeled.

B. This data must be reviewed and “stamped” approved prior to submittal to the Engineer to insure that all data is complete, accurate and complies with the requirements of this project. Any data that is submitted without the Contractor’s review and “Stamp” will be rejected in total, without review by the Engineer, and returned to the Contractor for re-submittal. Delays in project completion as a result of non-compliance with this requirement will be the responsibility of the Contractor, and any costs or penalties incurred as a result of same shall be borne by the Contractor. The Engineer shall require maximum 10 workings to complete review.

C. Satisfactory review by the Engineer must be obtained prior to release for order or fabrication unless specifically approved otherwise by the Engineer in writing. Failure to comply will result in rejection of any material or equipment not completely in conformance with the Contract Documents.

D. The Contractor will comply with all sections within this documentation. The purpose of the submittals is to demonstrate to the Engineer that the Contractor understands the design concept. The Contractor shall identify all deviations from drawings or specifications in writing. The contractors shall bring to the Engineer’s attention to such deviations at or before the time of submission. Contractor shall receive from the Engineer, in writing, permission for such deviations.

1.02 SUBMITTAL PROCEDURES

A. Submit six (6) copies of each submission.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix. Contractor shall submittal the approved submittal list with every submittal and it status (approved, Engineer reviewing, resubmitting or not submitted) with every submittal submission. Submittal list shall be included with electronic submittals (if allowed). Submittal list shall be listed by specification number and name and submittals for items on drawings shall be submitted per drawing number and equipment name (ie. M001, Hot Water Pump HWP-1:...).
C. Identify Project, Contractor, Subcontractor or Supplier; pertinent drawing and detail number, specification section number, as appropriate.

D. All submittal shall include, as appropriate, the following: Samples, Shop drawings, Product data, Manufacturers installation and operating instructions, manufacturers certificates, test data results, and all warranties. For each major section of submittal data, include a summary page that lists items and model numbers for each piece of equipment. See drawings and individual specification sections for additional required items. The electrical design for the various components is based on the power requirements of the mechanical equipment manufacturer scheduled or specified as "basis of design." Any modifications to the electrical system that are required due to the use of an approved equivalent manufacturer shall be made at no additional cost to the owner. All changes must be clearly documented and submitted for review by the Engineer prior to purchasing equipment.

E. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

F. Schedule submittals as required to expedite the Project, and deliver to the Engineer. Submittal schedule shall include all submittals that are required for review, name of each submittal, drawing and spec reference number, brief description of submittal, and review dates.

G. Identify variations from Contract Documents and Product or system limitations, which may be detrimental to successful performance of the completed Work.

H. Provide space for the Engineer of Record review stamps.

I. When material is re-submitted, identify all changes made since previous submission. Provide original number of copies to each party.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.

K. Submittals not requested will not be recognized or processed.

L. Accuracy of information and compliance with other requirements are the exclusive responsibility of the Contractor.

1.03 SUBMITTALS

A. See drawings and specifications for all submittal requirements.

1.04 COORDINATION DRAWINGS
SECTION 01 33 00
SUBMITTAL PROCEDURES

A. Submit complete consolidated and coordinated drawings for all new systems, and for existing systems that are in the same areas. Drawings shall indicate coordination with all other trades including but not limited to, HVAC, electrical, structural, plumbing and architectural items.

B. The drawings shall include plan views, elevations and sections of all systems and shall be on a scale of not less than 1:32 (3/8-inch equal to one foot). Clearly identify and dimension the proposed locations of the principal items of equipment. The drawings shall clearly show locations and adequate clearance for all equipment, piping, valves, control panels and other items. Show the access means for all items requiring access for operations and maintenance. Provide detailed layout drawings of all piping and duct systems.

C. Do not install equipment foundations, structural steel, equipment or piping until layout drawings have been approved.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: 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. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include MUSC Project name, MUSC Project number and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval. Stamp shall contain statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ARCHITECT'S ACTION

A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it.

B. On advice of counsel, retain appropriate terms for action stamp and insert term and explanation of each action taken in subparagraph below. See Evaluations.
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SUBMITTAL PROCEDURES

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.

D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

E. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

F. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION
SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General Conditions as modified by
   the Owner and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY
A. Section includes administrative and procedural requirements for contract closeout, including,
   but not limited to, the following:
   1. Warranties.
   2. Coordinate list below with "Related Requirements" subparagraphs.
   3. Substantial Completion procedures.
   4. Final completion procedures.
   5. Final cleaning.

1.03 SUBMITTAL OF PROJECT WARRANTIES
A. Time of Submittal: Submit written warranties on request of Architect for designated portions of
   the Work where commencement of warranties other than date of Substantial Completion is
   indicated, or when delay in submittal of warranties might limit Owner’s rights under warranty.
   B. Partial Occupancy: Submit properly executed warranties of designated portions of the Work
      that are completed and occupied or used by Owner during construction period by separate
      agreement with Contractor.
   C. Organize warranty documents into an orderly sequence based on the table of contents of
      Project Manual.
      1. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty
         and bond submittal package into a single indexed electronic PDF file with links enabling
         navigation to each item. Provide bookmarked table of contents at beginning of document.
   D. Provide additional copies of each warranty to include in operation and maintenance manuals in
      a format compatible with the O&M Manuals.

1.04 SUBSTANTIAL COMPLETION PROCEDURES
A. Submittals Prior to Architect’s Preliminary Inspection: Complete the following a minimum of 10
   days prior to Architect’s Preliminary Inspection for determining Substantial Completion.
   1. Submit written request for preliminary inspection.
2. Submit closeout submittals specified in other Division 01 Sections, including operation and maintenance manuals, damage or settlement surveys, and similar final record information.

3. Submit a list of items to be completed and corrected (Contractor’s punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

4. Submit closeout submittals specified in Technical Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

5. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer’s name and model number where applicable.
   a. Remove tools, construction equipment, machinery, and surplus material from Project site.

6. Submit changeover information related to Owner’s occupancy, use, operation, and maintenance.

B. Procedures Prior to Engineer’s Preliminary Inspection: Complete the following a minimum of 10 days prior to Architect’s Preliminary Inspection for determining Substantial Completion.

   1. Advise Owner of pending insurance changeover requirements.
   2. Contractor and Engineer set date and time for Substantial Completion Inspection.
   3. Complete startup and testing of systems and equipment.
   4. Perform preventive maintenance on equipment used prior to Substantial Completion.
   5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   6. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

C. Architect’s Preliminary Inspection: Architect will proceed with a preliminary inspection approximately two (2) weeks prior to the milestone Substantial Completion date on the schedule. The Architect will prepare a punch list that must be completed by the Substantial Completion date. At the preliminary inspection the Architect will also:

   1. Validate the Contractor record document redlines noting the errors and omissions on the punch list.
   2. Communicate with the Owner’s maintenance group on any deficiencies they are aware of and incorporate those items on the punch list.
   3. Validate the Contractor Closeout Submittals noting the errors and omissions on the punch list.
D. Substantial Completion: On the date established for Substantial Completion:
   1. Architect will perform a Substantial Completion Inspection and verify Contractor
completion of the punch list items related to Preliminary Inspection.
   2. Contractor submits remaining compliance documentation including testing and balancing
reports, and project record documents.

1.05 FINAL COMPLETION PROCEDURES

A. Procedures prior to Final Construction Inspection: After Substantial Completion and prior to the
Final Inspection, complete the following:
   1. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner’s
personnel of changeover in security provisions.
   2. All remaining Architect’s final punch list items shall be completed, signed by Contractor
and counter-signed by Architect.
   3. Contractor’s final cleaning.
   4. Remove all temporary barriers and partitions after final cleaning. Must obtain Owners
approval prior to removal.

B. Submittals prior to Final Construction Inspection: After Substantial Completion but prior to the
Final Inspection provide the following:
   1. Completed Architect’s punch list signed and counter-signed.

C. Final Construction Inspection: A final construction inspection will be undertaken by the
Architect.
   1. Architect will perform a Final Construction Inspection and verify Contractor completion of
the punch list items related to Substantial Completion.
   2. Upon satisfactory completion of the Final Inspection punch list, Contractor may request
release of retainage and may submit final invoice for payment.

D. Final Completion: Complete tasks in preparation to close out the project and occupy the site.
   1. Architect issues Final Completion documents, and prepares a final Certificate of
Payment.
   2. Architect delivers to the Owner the As-Built Record documents.

PART 2 - PRODUCTS

2.01 MATERIALS

A. 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.
PART 3 - EXECUTION

3.01 OPERATING AND MAINTENANCE MANUALS

A. Submit four (4) hard copies and one (1) electronic copies of Operating and Maintenance Manuals to the A/E. Each complete hard copy may utilize several binders to contain the materials. Each electronic copy shall consist of a single CDROM disc with consolidated and bookmarked individual Adobe PDF files for each item.

1. Provide proposed Operating and Maintenance Data format, including a table of contents, not less than 30 days prior to substantial completion. Proposed shall include bound copies of all guarantees/warranties, all maintenance manuals, all operating instructions, all spare parts lists and all approved submittals.

2. Provide completed and approved Operating and Maintenance Data Manuals in final form upon substantial completion of the Project.

3. Provide all Corrected, as-installed, reproducible plans and schematics in final form 30 days prior to final completion of the Project.


3.02 OWNER DEMONSTRATION AND OPERATING INSTRUCTIONS

A. In addition to specified training of Owner’s operating personnel specified in the individual sections, and in addition to preparation of written operating instructions and compiled maintenance manuals specified, provide general operating instructions for the mechanical systems to the Owner. Conduct a walk-through explanation and demonstration for orientation and education of Owner's personnel to be involved in continued operation of building and its mechanical systems. Provide instruction and demonstrations for the Owner’s designated operating staff, in conjunction with the participation of qualified technicians from major equipment suppliers and the controls contractor. If during any demonstration, the system fails to perform in accordance with the information included in the IOM manual, stop demonstration, repair or adjust, and repeat demonstration. Demonstrations may be combined with training sessions if appropriate.

1. Describe each basic mechanical system and how its control system functions, including flow adjustments, temperature control and similar operations.

2. Discuss any outstanding deficient items in control, ducting or design that may affect the proper delivery of air or water.

   a. Discuss any temporary settings and steps to finalize them for any areas that are not finished.
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b. Other salient information that may be useful for facility operations, relative to TAB.

3. Explain and point out identification system, displayed diagrams, signals, alarms and similar provisions of the work.

4. Describe basic sequencing requirements and interlock provisions for system start-up, phasing, coast-down, shut-down and seasonal operations.

5. Emphasize emergency procedures and safety provisions for protection of equipment and safety of occupants during equipment malfunction, disasters, power failures and similar unusual circumstances, and describe system limitations and precautions including weather adjustments.

6. Outline basic maintenance procedures.

   a. Demonstrate what adjustments have been made and can continue to be made to reduce noise and vibration, improve system output, decrease energy consumption and similar performance improvements.

   b. Point out operational security provisions, safety, unavoidable hazards and similar operator limitations. Display and conduct a "thumb-through" explanation of maintenance manuals, record drawings, meter readings and similar service items.

3.03 OWNER TRAINING

A. Provide classroom and hands-on training of Owner's designated personnel on operation and maintenance of the HVAC system, control system, and all equipment items. Provide the following minimum durations of training:

   1. Vacuum System and Control Panel operation: 2 hours.
   2. Contractor shall video the all work under building. Video shall be clear to show all areas of the work.

B. Contractor shall provide a typed list of everyone who attended the owner training. If multiple sessions then contractor shall have a list for each session.

3.04 SPARE PARTS

A. Contractor shall provide a full list of spare parts provided as part of the contract. List shall be included in the O&M Manuals. List shall be signed and dated by both the contractor and the owner.

3.05 PAY APPLICATION

A. Contractor shall submit original AIA Doc G702 and AIA Doc G703 for payment to the A/E (not owner). A minimum of 3 copies shall be submitted and each shall be notarized with raised seal. Pay application shall be sent to the A/E for approval and signature and A/E shall forward onto agency. Contractor shall submit a release of liens (AIA G706A) with each pay application. It is
highly recommend that the contractor submit an electronic copy to the A/E for approval prior to sending hard copies.

3.06 CLOSEOUT DOCUMENTS - SUBSTANTIAL COMPLETION

A. Materials List: Furnish the Owner, a typewritten list in triplicate showing every manufactured item/material used in job. Include catalog number, manufacturer's name and address, distributor's name and address. Type lists neatly and index according to respective specification sections of work.

B. Maintenance Instructions: Arrange to instruct operating and maintenance personnel of Owner in use and maintenance of mechanical systems and associated control systems and specialty equipments, provided under this contract. Submit letter showing when training was held and who attended.

C. Certificate of Substantial Completion, AIA Doc G704. To be completed and submit when the contractor is requesting substantial completion.

D. Contractor's Affidavit of Release of liens on AIA Document G706A. Contractor's Release or Waiver of Liens, conditional upon receipt of each payment. Submit in letter form on Contractor's letterhead.

E. Project Record Documents: Contractor shall provide 1 clean, readable set of project record documents showing all deviations or changes in routing, location, or installation procedures made during the course of construction.

F. O&M Manuals (hard copy and digital copies as noted above) completed and approved by engineer.

3.07 CLOSEOUT DOCUMENTS - FINAL COMPLETION

A. Contractor's Affidavit of Payment of Debts and Claims on AIA Document G706.


C. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment. Submit in letter form on Contractor's letterhead.

D. Contractor's Identification Badges and any keys shall be returned prior to receipt of final payment.

E. Certification that all items of work on the punch list are complete. Submit in letter form on Contractor's Letterhead with each item dated and initialed.

3.08 FINAL CLEANING
A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in a Healthcare Facility. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before Final Inspection for entire Project or for a designated portion of Project:
   a. Remove tools, construction equipment, machinery, and surplus material from Project site.
   b. Clean exposed hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   c. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   d. Sweep concrete floors broom clean in unoccupied spaces.
   e. Remove labels that are not permanent.
   f. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
   g. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
   h. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
   i. Leave Project clean and ready for Inspection.

3.09 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
   a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION
PART 1 - GENERAL

1.01 DESCRIPTION
A. The basic methods and requirements listed herein apply to all sections of Division 23.
B. Codes and Standards: The following codes and standards, applicable provisions of the State and Local Codes, and requirements listed elsewhere in the specifications, are hereby held in affect on a general basis for mechanical work. See cover page for codes per state.

1.02 QUALITY ASSURANCE
A. Products Criteria:
1. Standard Products: Material and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products for at least 3 years. See other specification sections for any exceptions.
2. Where applicable, equipment shall comply with Energy Star or FEMP designated products.
3. Equipment Service: Products shall be supported by a service organization which maintains a complete inventory of repair parts and is located reasonably close to the site.
4. Multiple Units: When two or more units of materials or equipment of the same type or class are required, these units shall be products of one manufacturer.
5. Assembled Units: Manufacturers of equipment assemblies, which use components made by others, assume complete responsibility for the final assembled product.
6. Nameplates: Nameplate bearing manufacturer's name or identifiable trademark shall be securely affixed in a conspicuous place on equipment, or name or trademark cast integrally with equipment, stamped or otherwise permanently marked on each item of equipment.
7. Asbestos products or equipment or materials containing asbestos shall not be used.
B. Welding: Before any welding is performed, contractor shall submit a certificate certifying that welders comply with the following requirements:
1. Qualify welding processes and operators for piping according to ASME "Boiler and Pressure Vessel Code", Section IX, "Welding and Brazing Qualifications".
2. Comply with provisions of ASME B31 series "Code for Pressure Piping".
3. Certify that each welder has passed American Welding Society (AWS) qualification tests for the welding processes involved, and that certification is current.
C. Manufacturer's Recommendations: Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material
being installed, printed copies of these recommendations shall be furnished to the Engineer prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material.

D. Warranty: Provide manufacturer's standard printed warranty in reference to a specific product and normal application, stating that certain acts of restitution will be performed for the Purchaser or Owner by the manufacturer, when and if the product fails within certain operational conditions and time limits. Where the warranty requirements of a specific specification section exceeds the manufacturer's standard warranty, the more stringent requirements will apply. In no case shall the manufacturer's warranty be less than one (1) year.

PART 2 - PRODUCTS

2.01 PIPE PENETRATIONS

A. Install sleeves during construction for other than blocked out floor openings.

B. To prevent accidental liquid spills from passing to a lower level, provide the following:
   1. For sleeves: Extend sleeve 1-inch above finished floor and provide sealant for watertight joint.
   2. For blocked out floor openings: Provide 1-1/2 inch angle set in silicone adhesive around opening.
   3. For drilled penetrations: Provide 1-1/2 inch angle ring or square set in silicone adhesive around penetration.

C. Penetrations are not allowed through beams, ribs, or other structural member without prior approval of the Engineer.

D. Sheet Metal, Plastic, or Moisture-resistant Fiber Sleeves: Provide for pipe passing through floors, interior walls, and partitions, unless brass or steel pipe sleeves are specifically called for below.

E. Cast Iron or Zinc Coated Pipe Sleeves: Provide for pipe passing through exterior walls below grade. Make space between sleeve and pipe watertight with a modular or link rubber seal. Seal shall be applied at both ends of sleeve.

F. Brass Pipe Sleeves: Provide for pipe passing through quarry tile, terrazzo or ceramic tile floors. Connect sleeve with floor plate.

G. Sleeves are not required for wall hydrants for fire department connections or in drywall construction.
H. Sleeve Clearance: Sleeve through floors, walls, partitions, and beam flanges shall be 1-inch greater in diameter than external diameter of pipe. Sleeve for pipe with insulation shall be large enough to accommodate the insulation. Interior openings shall be caulked tight with fire stopping material and sealant to prevent the spread of fire, smoke, and gases as required to meet the listed UL assembly requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Coordinate location of piping, sleeves, inserts, hangers, ductwork and equipment with existing conditions and other trades prior to installation. Locate piping, sleeves, inserts, hangers, ductwork and equipment clear of windows, doors, openings, light outlets, and other services and utilities. Follow manufacturer's published recommendations for installation methods not otherwise specified.

B. Protection and Cleaning:
   1. Equipment and materials shall be carefully handled, properly stored, and adequately protected to prevent damage before and during installation, in accordance with the manufacturer's recommendations. Damaged or defective items in the opinion of the Engineer shall be replaced.
   2. Protect all finished parts of equipment, such as shafts and bearings where accessible, from rust prior to operation by means of protective grease coating and wrapping. Close pipe openings with caps or plugs during installation. Tightly cover and protect fixtures and equipment against dirt, water, chemical, or mechanical injury. At completion of all work thoroughly clean fixtures, exposed materials and equipment.

C. Concrete and Grout: Use concrete and shrink compensating grout 3000 psi minimum.

D. Put all HVAC equipment and systems into operation and continue operation during each working day of testing, adjusting, and balancing and commissioning, as required.
   1. Include cost of sheaves and belts that may be required for testing, adjusting, and balancing.

E. Provide test holes in ducts and plenums where directed to allow air measurements and air balancing; close with an approved plug.

F. Provide temperature and pressure taps in accordance with the contract documents.
   1. Provide a pressure/temperature plug at each water sensor that is an input point to the control system.
G. Install gages, thermometers, valves and other devices with due regard for ease in reading or operating and maintaining said devices. Locate and position thermometers and gages to be easily read by operator or staff standing on floor or walkway provided. Servicing shall not require dismantling adjacent equipment or pipe work.

H. Install steam piping expansion joints as per manufacturer’s recommendations.

I. Work in Existing Building:
   1. Make alterations to existing utilities at times that will least interfere with normal operation of the facility. Provide Owner with a minimum of 10 working days advance notice prior to performing work.
   2. Cut required openings through existing masonry and reinforced concrete using diamond core drills or saw cutting. Use of pneumatic hammer type drills, impact type electric drills, and hand or manual hammer type drills, will be permitted only with approval of the Engineer. Locate openings that will least affect structural slabs, columns, ribs or beams. Do not cut structural framing, walls, floors, decks and other members intended to withstand stress, except with the Engineer’s written authorization. Authorization will be granted only where there no other reasonable method for completing the mechanical work, and where the proposed cutting clearly does not materially weaken the structure.

3.02 EQUIPMENT STARTUP

A. Start up equipment as described in equipment specifications. Verify that vibration is within specified tolerance prior to extended operation. Adjust and coordinate the timing of mechanical system start-ups with seasonal variations, so that demonstration and testing of specified performance can be observed and recorded. Exercise proper care in off-season start-ups to ensure that systems and equipment will not be damaged by the operation. All fire protection equipment shall be certified in writing by Simplex Grinnell prior to start up of AHU equipment.

B. Coordinate the initial cleaning and start-up of the HVAC air distribution system, to occur prior to preparatory cleaning and general interior painting and decorating on the project and after final sanding of the gypsum wallboard is complete.

3.03 OPERATING AND PERFORMANCE TESTS

A. At the time of mechanical work closeout, check each item in each system to determine that it is set for proper operation. Operate each system in a test run of appropriate duration to demonstrate compliance with performance requirements. During or following test runs, make final corrections or adjustments of system to refine and improve performances wherever possible, including noise and vibration reductions, elimination of hazards, better response of controls, signals and alarms, and similar system performance improvements. Provide testing or
inspection devices as may be requested for Engineer's observation of actual system performances. Demonstrate that controls and items requiring service or maintenance are accessible. Test run shall be scheduled to coincide with Engineer's final inspection of the mechanical work.

B. Should evidence of malfunction in any tested system, or piece of equipment or component part thereof, occur during or as a result of tests, make proper corrections, repairs or replacements, and repeat tests at no additional cost to the Owner.

C. After final performance test run of each mechanical system, clean system both externally and internally. Clean dirt and debris from air handling systems and clean or replace dirty filters. Flush piping system by operating drains and similar means, and clean strainers and traps. Lubricate both power and hand operated equipment and remove excess lubrication. Touch-up minor damage to factory painted finishes and other painting specified as mechanical work; refinish work where damage is extensive.

END OF SECTION
PART 1 - GENERAL

1.01 SCOPE

A. The following is a list of the information which will be required to be submitted to the Architect/Engineer and Construction Manager by the Contractor with a letter of transmittal identifying each item, as specified per the drawings and specifications.

B. This data must be reviewed and “stamped” approved prior to submittal to the Architect/Engineer to insure that all data is complete, accurate and complies with the requirements of this project. Any data that is submitted without the Contractor’s review and “Stamp” will be rejected in total, without review by the Engineer, and returned to the Contractor for re-submittal. Delays in project completion as a result of non-compliance with this requirement will be the responsibility of the Contractor, and any costs or penalties incurred as a result of same shall be borne by the Contractor. The Engineer shall require maximum 10 workings to complete review.

C. Satisfactory review by the Architect/Engineer must be obtained prior to release for order or fabrication unless specifically approved otherwise by the Architect/Engineer in writing. Failure to comply will result in rejection of any material or equipment not completely in conformance with the Contract Documents.

D. The Contractor will comply with all sections within this documentation. The purpose of the submittals is to demonstrate to the Architect/Engineer that the Contractor understands the design concept. The Contractor shall identify all deviations from drawings or specifications in writing. The contractors shall bring to the Architect/Engineer's attention to such deviations at or before the time of submission. Contractor shall receive from the Architect/Engineer, in writing, permission for such deviations.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 SUBMITTAL PROCEDURES

A. See Section 01 33 00 for submittal procedures.

3.02 SUBMITTALS

A. The following submittals are required (but not limited to):
   1. Identification for HVAC Piping and Equipment.
   2. Seismic and Vibration Isolation.
   3. Hangers and Supports
4. Hydronic Piping and Piping Insulation

3.03 COORDINATION DRAWINGS

A. Submit complete consolidated and coordinated drawings for all new systems, and for existing systems that are in the same areas. Drawings shall indicate coordination with all other trades including but not limited to, electrical, structural, plumbing and architectural items. Contractor shall measure the location of the chilled water piping and show dimensions on the coordination drawings.

B. The drawings shall include plan views, elevations and sections of all systems and shall be on a scale of not less than 1:32 (3/8-inch equal to one foot). Clearly identify and dimension the proposed locations of the principal items of equipment. The drawings shall clearly show locations and adequate clearance for all equipment, piping, valves, and other items. Show the access means for all items requiring access for operations and maintenance. Provide detailed layout drawings of all piping systems and structural new and existing structural members.

C. Do not install equipment foundations, equipment or piping until layout drawings have been approved by engineer.

3.04 OPERATING AND MAINTENANCE MANUALS

A. Submit four (4) hard copies and a digital copy of Operating and Maintenance Manuals to the Architect/Engineer. Each complete copy may utilize several binders to contain the materials.

1. Provide proposed electronic Operating and Maintenance Data format, including a table of contents, not less than 30 days prior to substantial completion. Proposed shall include copies of all guarantees/warranties, all maintenance manuals, all operating instructions, all spare parts lists and all approved submittals.

2. Provide completed and approved Operating and Maintenance Data Manuals in final form upon substantial completion of the Project.

3. Provide all Corrected, as-installed, reproducible plans and schematics in final form 30 days prior to final completion of the Project.

3.05 OWNER DEMONSTRATION AND OPERATING INSTRUCTIONS

A. In addition to specified training of Owner’s operating personnel specified in the individual sections, and in addition to preparation of written operating instructions and compiled maintenance manuals specified, provide general operating instructions for the mechanical systems to the Owner. Conduct a walk-through explanation and demonstration for orientation and education of Owner’s personnel to be involved in continued operation of building and its mechanical systems. Provide instruction and demonstrations for the Owner’s designated
operating staff, in conjunction with the participation of qualified technicians from major equipment suppliers and the controls contractor. If during any demonstration, the system fails to perform in accordance with the information included in the IOM manual, stop demonstration, repair or adjust, and repeat demonstration. Demonstrations may be combined with training sessions if appropriate.

1. Describe each basic mechanical system and how its control system functions, including flow adjustments, temperature control and similar operations.

2. Review the TAB Report for each system explaining the layout and meanings of each data type.
   a. Discuss any outstanding deficient items in control, ducting or design that may affect the proper delivery of air or water.
   b. Identify and discuss any terminal units, duct runs, diffusers, coils, fans and pumps that are close to or are not meeting their design capacity.
   c. Discuss any temporary settings and steps to finalize them for any areas that are not finished.
   d. Other salient information that may be useful for facility operations, relative to TAB.

3. Explain and point out identification system, displayed diagrams, signals, alarms and similar provisions of the work.

4. Describe basic sequencing requirements and interlock provisions for system start-up, phasing, coast-down, shut-down and seasonal operations.

5. Emphasize emergency procedures and safety provisions for protection of equipment and safety of occupants during equipment malfunction, disasters, power failures and similar unusual circumstances, and describe system limitations and precautions including weather adjustments.

6. Outline basic maintenance procedures.
   a. Demonstrate what adjustments have been made and can continue to be made to reduce noise and vibration, improve system output, decrease energy consumption and similar performance improvements.
   b. Point out operational security provisions, safety, unavoidable hazards and similar operator limitations. Display and conduct a “thumb-through” explanation of maintenance manuals, record drawings, meter readings and similar service items.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES.
   A. Pressure gages.
   B. Thermometers and thermometer wells.

1.02 RELATED SECTIONS
   A. Section 23 21 13 Hydronic Piping
   B. Section 23 21 14 Hydronic Specialties

1.03 STANDARDS
   A. ASME B40.100 - Pressure Gauges and Gauge Attachments; The American Society of Mechanical Engineers; 2005.

1.04 SUBMITTALS
   A. See Section 01 for submittal procedures.
   B. Product Data: Provide list that indicates use, operating range, total range and location for manufactured components.

PART 2 - PRODUCTS

2.01 PRESSURE GAUGES
   A. Manufacturers:
      1. Trerice
      2. Dwyer Instruments
      3. Moeller Instrument Co.
      4. Omega Engineering, Inc
   B. Chilled Water Pressure Gages: conform to ASME B40.100
      1. Case: Stainless Steel with bronze tube and brass socket
      2. Size: 4 inch diameter.
      3. Lens: Acrylic
SECTION 23 05 19
METER AND GAGES FOR HYDRONIC PIPING

4. Dial: Aluminum white with black divisions and numbers
5. Movement: Brass
6. Internals: Glycerin Filled
7. Socket Size: 1/4” NPT male bottom orientation
8. Accuracy: 1.6% of Full Scale
9. Max Temperature: 150 F
10. Basis of Design: Trerice D80

C. Hot Water Pressure Gages: conform to ASME B40.100 Grade 1A
   1. Case: Stainless Steel with brass tube and brass socket
   2. Size: 4 inch diameter.
   3. Lens: Acrylic
   4. Dial: Aluminum white with black divisions and numbers
   5. Movement: Brass
   6. Socket Size: 1/4” NPT male bottom orientation
   7. Accuracy: 1.0% of Full Scale
   8. Max Temperature: 250 F
   9. Basis of Design: Trerice 620 B

2.02 DIAL TYPE THERMOMETERS

A. Manufacturers:
   1. Trerice
   2. Dwyer Instruments, Inc
   3. Omega Engineering, Inc
   4. Weksler Glass Thermometer Corp

B. Universal Angle Thermometer
   1. Case: Cast Aluminum
   2. Window: Clear Glass
   3. Size: 4.5 inch diameter
   4. Dial: Aluminum white with black divisions and numbers
   5. Movement: Brass
   6. Accuracy: 1% scale division
   7. Thermowell shall be provided with Dial Thermometer
   8. Dial shall come with universal angle that can be adjusted 180 degrees front to back and rotated 360 degrees.

PART 3 - EXECUTION
SECTION 23 05 19  
METER AND GAGES FOR HYDRONIC PIPING  

3.01 INSTALLATION  

A. Install in accordance with manufacturer's instructions.  

B. Provide instruments with scale ranges selected according to service with largest appropriate scale.  

C. Install gages and thermometers in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.  

D. Adjust gages and thermometers to final angle, clean windows and lenses, and calibrate to zero.  

END OF SECTION
PART 1 - GENERAL

1.01 DESCRIPTION
A. Nameplates.
B. Valve Tags.
C. Pipe Markers.
D. Stencils.
E. Ceiling Tacks.
F. Ceiling Labels.

1.02 REFERENCES

1.03 SUBMITTALS
A. Submit in accordance with Section 01 requirements.
B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.
C. Chart and Schedule: Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
D. Product Data: Provide manufacturers catalog literature for each product required.
E. Manufacturer's Installation Instructions: Indicate special procedures, and installation.
F. Project Record Documents: Record actual locations of tagged valves.

PART 2 - PRODUCTS

2.01 GENERAL
A. Coordinate names, abbreviations and other designations used in mechanical identification work, with corresponding designations shown, specified or schedule. Provide numbers, lettering, and wording as indicated or, if not otherwise indicated, as recommended by manufacturers or as required for proper identification and operation/maintenance of mechanical systems and equipment.
B. Where more than single type is specified for an application, selection is the Contractor's option. Provide a single selection for each product category.
C. Where multiple systems of same generic name are shown and specified, provide identification which indicates individual system number as well as service (e.g. Heat Pump No. HP-1, Exhaust Fan No. EF-1, etc.).

2.02 NAMEPLATES

A. Description: Engraved laminated three-layer plastic nameplates with letters engraved with engraver's standard letter style except as otherwise indicated. Nameplates shall identify unit components such as coils, filters, fans, etc.
   2. Background Color: Black.
   3. Thickness: 1/16 inch for nameplates up to 20 square inches or 8 inch length; 1/8 inch for larger nameplates.
   4. Letter Height: Minimum 1/4 inch high for identification where viewing distance is less than 2'-0", 1/2 inch high for distances up to 6'-0", and proportionately larger lettering for greater distances. Height on secondary lettering shall be 2/3 to 3/4 the size of the principal lettering height.
   5. Fasteners:
      a. Self-tapping stainless steel screws.
      b. Contact-type permanent adhesive where screws cannot or should not penetrate the substrate.

2.03 VALVE TAGS

A. Plastic Valve Tags: Manufacturer’s standard laminated three-layer plastic tag with engraved black letters on light contrasting background color. Tag shall be minimum 1-1/2 inch diameter with piping system abbreviation in approximately 3/16 inch high letters and sequenced valve numbers 3/8 inch high and with a 5/32 inch hole for fastening.

B. Brass Valve Tags: Provide 19-gage polished brass valve tags with stamp-engraved black filled letters. Tag shall be minimum 1-1/2 inch diameter with piping system abbreviation in approximately 3/16 inch high letters and sequenced valve numbers 3/8 inch high and with a 5/32 inch hole for fastening.

C. Valve Tag Fasteners: Provide manufacturer’s standard brass, nickel or chrome plated chain (wire link or beaded type), or solid brass S-hooks of the sizes required for proper attachment of tags to valves, and manufactured specifically for that purpose.

D. Schedule:
   1. Provide schedule for each piping system, typewritten and reproduced on 8-1/2 inch x 11 inch paper.
SECTION 23 05 53
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

2. Tabulate valve number, piping system, system abbreviation (as shown on tag), location of valve (room or space), and variations for identification (if any).

3. In mechanical rooms, provide framed valve schedules (one frame for each page) in a glazed frame with screws for removable mounting on masonry walls.

4. In addition to mounted copies, furnish extra copies for maintenance manuals.

2.04 PIPE MARKERS

A. General: Provide manufacturer's standard pre-printed, flexible or semi-rigid, permanent, color-coded, plastic-sheet pipe markers, complying with ASME A13.1.

B. Plastic Full-Band Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed. Markers shall be fastened by one of the following methods:
   1. Snap-on application of pre-tensioned semi-rigid plastic pipe marker.
   2. Taped to pipe (or insulation) with color-coded plastic adhesive tape, not less than 3/4 inch wide; full circle at both ends of pipe marker, tape lapped 1-1/2 inches.

C. Plastic Strip-type Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings. Markers shall be at least 3 times the letter height (and of required length), fastened by one of the following methods:
   1. Taped to pipe (or insulation) with color-coded plastic adhesive tape, not less than 1-1/2 inch wide; full circle at both ends of pipe marker, tape lapped 3 inches.
   2. Strapped-to-pipe (or insulation) application of semi-rigid type, with manufacturer's standard stainless steel bands.

D. Arrows: Print each pipe marker with arrows indicating direction of flow, either integrally with piping system service lettering (to accommodate both directions), or as a separate unit of plastic.

E. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

2.05 STENCILS

A. Stencils: With clean cut symbols and letters of following size:
   1. 3/4 to 1-1/4 inch Outside Diameter of Insulation or Pipe: 8 inch long color field, 1/2 inch high letters.
   2. 1-1/2 to 2 inch Outside Diameter of Insulation or Pipe: 8 inch long color field, 3/4 inch high letters.
SECTION 23 05 53
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

3. 2-1/2 to 6 inch Outside Diameter of Insulation or Pipe: 12 inch long color field, 1-1/4 inch high letters.

4. 8 to 10 inch Outside Diameter of Insulation or Pipe: 24 inch long color field, 2-1/2 inch high letters.

5. Over 10 inch Outside Diameter of Insulation or Pipe: 32 inch long color field, 3-1/2 inch high letters.


B. Stencil Paint: As specified in Section 09, semi-gloss enamel, with colors conforming to ASME A13.1.

2.06 INSTRUMENTS AND CONTROLS

A. General: Label all temperature and humidity sensors, controllers and control dampers. Identify and label each item as they appear on the control diagrams.

B. Identify all panel-mounted instruments and controls with nameplates permanently affixed to Panel boards. See electrical drawings for more details.

C. Identify all alarm indicating devices and alarm reset devices by nameplates.

D. Identify all damper motors and automatic valves, flow switches, pressure switches, etc., with embossed aluminum or plastic tape affixed to controller, indicating service and setting.

E. Identify wall mounted thermostats/sensors relating to terminal boxes or valves with clear plastic tape affixed to the underside of the thermostat/sensor.

2.07 CEILING TACKS

A. Description: Steel with 3/4 inch diameter color coded head.

B. Color code as follows:
   1. Yellow - HVAC equipment
   2. Red - Fire dampers/smoke dampers
   3. Blue - Heating/cooling valves

2.08 CEILING LABELS

A. Description: Provide clear 3/8 inch plastic tape with bar code and equipment tag as noted on the drawings and valve tag as noted on the valve schedule.

B. Equipment types:
   1. HVAC equipment.
   2. Fire dampers/smoke dampers.
   3. Heating/cooling valves.
PART 3 - EXECUTION

3.01 PREPARATION

A. Where identification is to be applied to surfaces which require insulation, painting or other covering or finish, install identification after completion of covering and painting.

B. Install identification prior to installation of acoustical ceilings and similar removable concealment.

3.02 INSTALLATION

A. Provide valve tags on every valve, cock and control device in each piping system; excluding check valves, valves within factory-fabricated equipment units, plumbing fixture faucets, hose bibs, and shut-off valves at plumbing fixtures, HVAC terminal devices and similar rough-in connections of end-use fixtures and units. List each tagged valve in valve schedule for each piping system.

B. Identify piping, concealed or exposed, with markers or stenciled painting as specified. Install in clear view and align with axis of piping. Locate pipe markers as follows wherever piping is exposed to view in occupied spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums) and exterior non-concealed locations.

1. Near each valve and control device.
2. Near each branch, excluding short take-offs for fixtures and terminal units; mark each pipe at branch, where there could be question of flow pattern.
3. Near locations where pipes pass through walls or floors/ceilings, or enter non-accessible enclosures.
4. At access doors, manholes and similar access points which permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced intermediately at maximum spacing of 40 feet along each piping run, except reduce spacing to 25 feet in congested areas of piping and equipment.

C. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.

D. Identify air supply, return, exhaust, intake and relief ductwork with stenciled signs and arrows, showing ductwork service and direction of flow, in black or white, whichever provides the most contrast with ductwork color. Locate identification in each space where ductwork is exposed, or concealed only by removable ceiling system, locate signs near points where ductwork originates or continues into concealed enclosures (shaft, underground, or similar concealment), and at 50 feet spacing along exposed runs.
SECTION 23 05 53
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

E. Identify access doors with stenciled or plastic-laminate type signs on each access door in ductwork and housings, indicating the purpose of the access (to what equipment) and other maintenance and operating instructions, and appropriate safety and procedural information.

F. Identify HVAC equipment, dampers, and valves located above removable T-bar type ceiling systems with tacks located in corner of T-bar ceiling panel closest to each piece of equipment.

G. Identify HVAC equipment, dampers, and valves located above removable T-bar type ceiling systems with labels installed on the lay-in ceiling T-bar closest to each piece of equipment.

3.03 ADJUSTING AND CLEANING

A. Adjusting: Relocate any mechanical identification device which has become visually blocked by work of this division or other divisions.

B. Cleaning: Clean face of identification devices, and glass frames of valve charts.

END OF SECTION
PART 1 - GENERAL

A. Testing, adjustment, and balancing of air systems.
B. Testing, adjustment, and balancing of hydronic systems.
C. Measurement of final operating condition of HVAC systems.

1.02 REFERENCES

D. SMACNA (TAB) - HVAC Systems Testing, Adjusting, and Balancing; Sheet Metal and Air Conditioning Contractors' National Association; 2002.

1.03 SUBMITTALS

A. Qualifications: Submit name of adjusting and balancing agency and TAB supervisor for approval within 30 days after award of Contract.
B. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.
   1. THE TAB PLAN (PRE-SUBMITTAL) SHALL BE SUBMITTED TO THE ENGINEER AND SHALL INCLUDE:
      a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
      b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
      c. Identification and types of measurement instruments to be used and their most recent calibration date.
   2. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
      a. Submit to the ENGINEER within Two weeks after completion of testing, adjusting, and balancing.
b. Revise TAB plan to reflect actual procedures and submit as part of final report.

c. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect and for inclusion in operating and maintenance manuals.

d. Provide reports in 3-ring binder manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.

e. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.

C. Include the following on the title page of each report:
   1. Name of Testing, Adjusting, and Balancing Agency.
   2. Address of Testing, Adjusting, and Balancing Agency.
   3. Telephone number of Testing, Adjusting, and Balancing Agency.
   4. Project name.
   5. Project location.
   7. Project Engineer.
   8. Project Contractor.

D. Project Record Documents: Record actual locations of flow measuring stations; balancing valves and rough setting.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 GENERAL:

A. The general, electrical, mechanical, controls, and sheet metal contractor(s) will verify that systems are complete and operable before commencing work. Responsible installing contractors shall ensure the following conditions:
   1. Systems are started and operating in a safe and normal condition.
   2. Temperature control systems are installed, complete, and operable.
   3. All automatic and manual dampers are operable and fully open.
   4. Proper thermal overload protection is in place for all fans, pumps, chillers, etc.
   5. Final filters are clean and in place.
   6. Duct and fan systems are clean of debris.
7. Fans are rotating correctly.
8. Fire and volume dampers are in place and open.
9. Air coil fins are cleaned and combed straightened.
10. Access doors are closed, and duct end caps are in place.
11. Hydronic systems are pressure tested, flushed, filled, and properly vented.
12. Leak testing on duct system has been performed if required.
13. Pumps are rotating correctly.
14. Start up or construction strainers have been removed and all other strainers are clean and in place.
15. Gauges and/or test ports are properly located for balancing.
16. Service and balance valves are open.

B. A construction deviation field report must be submitted noting deviation, or deficiencies in the above, that would preclude or prevent system balance.

C. Engineer or Owner may request up to 30% of the system to be re-tested in the presence of the engineer or owner respectively.

D. INSTALLATION TOLERANCES
1. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 5 percent of design for return and exhaust systems.
2. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.
3. Hydronic Systems: Adjust to within plus 10 percent and minus 5 percent of design.

3.02 AIR AND WATER SYSTEMS PROCEDURE:

A. Adhere to one of the following procedures: TABB & SMACNA’s HVAC Testing, Adjusting, and Balancing International Standards; NEBB procedural standards for TAB of environmental systems; AABC National standards for total system balance.

B. The hydronic balancing shall include the minimum data
1. Prepare itemized equipment schedules, listing all heating and/or cooling elements and equipment in the systems to be balanced. List in order on equipment schedules, by pump or zone according to the design, all heating and/or cooling elements, all zone balancing valves, and circuit pump ending with the last items of equipment or transfer element in the respective zone or circuit. Include on schedule sheet column titles listing the location, type of element or apparatus, design conditions, and measured conditions. Prepare individual pump report sheets for each zone or circuit.
2. Use calibrated Venturi tubes, orifices, metered fittings, pressure gages, and direct reading instrumentation to determine flow rates for system balance. Where flow-metering
SECTION 23 05 93
TEST, BALANCE & ADJUST

devices are not installed, flow balance on temperature difference across various heat transfer elements in the system is acceptable.

3. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.

4. Effect system balance with automatic control valves fully open to heat transfer elements.

5. Adjust hydronic distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.

3.03 REPORT

A. Reports shall include the following minimum information, Title Page: Project Name & Location; Project Architect & Location; Project Engineer & Location; Project Contractors (General, Mechanical, Balancing) & Location; Page index for all sections of the report; Report date

B. Summary & Certifications: Deficiency noted where design criteria could not be obtained within specified tolerance; Design versus final performance; Quality assurance statement and balancing certification; Name & address of Certifying Testing, Adjusting, and Balancing Agency; TAB Supervisor name and certification number; TAB technician name and certification number

C. Heat Exchanger: Identification/number; Location; Service; Manufacturer; Water flow, design and actual; Water pressure drop, design and actual; Entering water temperature, design and actual; Leaving water temperature, design and actual;

END OF SECTION
PART 1 - GENERAL

1.01 DESCRIPTION
   A. Piping insulation.
   B. Jackets and accessories.

1.02 RELATED SECTIONS
   A. Section 23 21 13 - Hydronic Piping.

1.03 REFERENCES
   A. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel
      Sheet, Strip, Plate, and Flat Bar; 2003.
   C. ASTM B 209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate;
      2006.
      Insulating and Finishing Cement; 2000.
   H. ASTM C 533 - Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation;
      2007.
   I. ASTM C 534 - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal
      Insulation in Sheet and Tubular Form; 2005.
   M. ASTM C 585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for
      Nominal Sizes of Pipe and Tubing (NPS System); 1990 (Reapproved 2004).

1.04 SUBMITTALS
A. Submit in accordance with Section 01 requirements.
B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
C. Manufacturer's Instructions: Indicate installation procedures that ensure acceptable workmanship and installation standards will be achieved.

1.05 QUALITY ASSURANCE
A. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum 10 years of documented experience.

PART 2 - PRODUCTS

2.01 REQUIREMENTS FOR ALL PRODUCTS OF THIS SECTION
A. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E 84; NFPA 255; or UL 723.
2.02 FLEXIBLE ELASTOMERIC CELLULAR INSULATION

A. For use with chilled water piping and hot water.

B. Manufacturer:
   1. Armacell International.
   2. Substitutions: Engineer approved equal.

C. Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C 534 Grade 3; Grade 2; or Grade 1; use molded tubular material wherever possible.
   1. Minimum Service Temperature: -40 degrees F.
   2. Maximum Service Temperature: 220 degrees F.

D. Elastomeric Foam Adhesive: Air dried, contact adhesive, compatible with insulation.

E. Maximum Conductivity: 0.28

F. Minimum Thickness:
   1. Pipes 1-1/2" and smaller: 1" thick insulation minimum
   2. Pipes larger than 1-1/2": 1-1/2" thick insulation minimum

2.03 JACKETS

A. PVC Plastic for chilled water and hot water under the Anderson House.
   1. Jacket: One piece molded type fitting covers and sheet material, off-white color.
      a. Minimum Service Temperature: 0 degrees F.
      b. Maximum Service Temperature: 150 degrees F.
      c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E 96/E 96M.
      d. Thickness: 10 mil; 15 mil; or 30 mil.
      e. Connections: Brush on welding adhesive.
   2. Covering Adhesive Mastic:
      a. Compatible with insulation.
   3. Hot Water and Chilled water piping: Install PVC jacket and fittings ready for finish painting or provide jacketing colored for application.

B. Aluminum Jacket: for all exterior chilled water and hot water.
   2. Thickness: 0.016 inch; 0.020 inch; 0.025 inch; 0.032 inch; or 0.040 inch sheet.
   3. Finish: Smooth or Embossed.
   5. Fittings: 0.016 inch thick die shaped fitting covers with factory attached protective liner.
6. Metal Jacket Bands: 3/8 inch wide; 0.015 inch thick aluminum.
7. Metal Jacket Bands: 3/8 inch wide; 0.010 inch thick stainless steel.

PART 3 - EXECUTION

3.01 EXAMINATION
   A. Verify that piping has been tested before applying insulation materials.
   B. Verify that surfaces are clean and dry, with foreign material removed.
   C. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

3.02 INSTALLATION
   A. Install in accordance with manufacturer's written instructions.
   B. Install in accordance with NAIMA National Insulation Standards.
   C. Paint insulation jackets to match existing color scheme for chilled water (green) and hot water piping (yellow).
   D. Exposed Piping: Locate insulation and cover seams in least visible locations.
   E. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
   F. For hot piping conveying fluids over 140 degrees F, insulate flanges and unions at equipment.
   G. Glass fiber insulated pipes conveying fluids above ambient temperature:
      2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
   H. Inserts and Shields:
      1. Shields: Galvanized steel; between pipe hangers or pipe hanger rolls and inserts.
      2. Insert location: Between support shield and piping and under the finish jacket.
      3. Insert configuration: Minimum 6 inches (150 mm) long, of same thickness and contour as adjoining insulation; may be factory fabricated.
      4. Insert material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
SECTION 23 07 19
HYDRONIC PIPING INSULATION

I. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to the UL listed assembly requirements.

J. Pipe Exposed in Finished Spaces:
   1. Hot Water Piping: Install Fiberglass insulation with cloth jacket ready for finish painting.
   2. Chilled Water Piping: Install PVC jacket and fittings ready for finish painting.

END OF SECTION
PART 1 - GENERAL

1.01 DESCRIPTION

   A. Pipe and pipe fittings.
   B. Valves.

1.02 RELATED SECTIONS

   A. Section 23 05 48 - Seismic Restraints.
   B. Section 23 05 53 - Identification for HVAC Piping and Equipment.
   C. Section 23 07 19 - HVAC Piping Insulation.
   D. Section 23 25 00 - Hydronic Water Treatment.
   E. Section 23 73 13 - Central Station Chilled Water Air Handler

1.03 REFERENCES

   A. ASME B16.3 - Malleable Iron Threaded Fittings; The American Society of Mechanical Engineers; 1998 (R2006).
   C. ASME B31.9 - Building Services Piping; The American Society of Mechanical Engineers; 2004 (ANSI/ASME B31.9).
   G. AWS A5.8/A5.8M - Specification for Filler Metals for Brazing and Braze Welding; American Welding Society; 2004 and errata.
1.04 SUBMITTALS

A. Submit in accordance with Section 01 requirements.

B. Product Data: Provide data on pipe materials, pipe fittings, valves and accessories. Provide manufacturers catalogue information. Indicate valve data and ratings.

C. Welders Certificate: Include welders certification of compliance with ASME (BPV IX); AWS D1.1.

D. Manufacturer’s Installation Instructions: Indicate hanging and support methods, joining procedures.

E. Project Record Documents: Record actual locations of valves; and piping.

F. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

1.05 QUALITY ASSURANCE

A. Installer: Company specializing in performing the work of this section, with minimum 10-years of documented experience.

B. Welders: Certify in accordance with ASME (BPV IX); AWS D1.1.

PART 2 - PRODUCTS

2.01 CHILLED WATER & HOT WATER PIPING, ABOVE GROUND

A. Steel Pipe: ASTM A 53/A 53M, Schedule 40, black.
   1. Fittings: ASME B16.3 malleable iron Class 250, or ASTM A 234/A 234M wrought steel.
   2. Joints: Threaded, or AWS D1.1 welded.

B. Copper Tube: ASTM B 88 (ASTM B 88M), Type L, hard drawn.
   2. Tee Connections: Mechanically extracted collars with notched and dimpled branch tube.

2.02 CHILLED WATER & HEATING WATER PIPING, BURIED
A. MANUFACTURERS: Products of the following manufacturers which comply with all requirements are acceptable:
   1. Perma Pipe
   2. Thermal Pipe Systems, Inc.
   3. Thermacor

B. Pre-insulated Piping under ground piping:
   1. All straight sections of steel pipe shall be factory insulated. Field weld joints shall be provided with field insulation kits to be compatible with the pre-insulated pipe.
   2. The carrier pipe shall be concentrically located within the jacket.
   3. Carrier pipe shall be standard weight, carbon steel, seamless, ASTM A-53, Grade A or B. All joints shall be butt-welded. Pipe fittings shall be standard weight seamless steel welding fittings satisfying ASTM A284, Grade WPA or WPB, ANSI B16.9e, long radius bends, having a wall thickness equal to the pipe. Piping fittings shall be factory welded to sections of straight pipe and factory insulated and jacketed. All piping shall be shipped from the factory to the job with ends capped.
   4. Provide polyurethane insulated underground carbon steel core piping system with HDPE outer shell. The pre-insulated pipe shall be in unitized factory prefabricated sections. Pipe shall be listed suitable for use with 38°F chilled water.
   5. Sock-o-lets for vents (2"), drains (2"), instrument taps (1") and thermowells shall be located in each valve pit per plan and shall be welded on in the shop. Insulation shall be held back from such fittings to allow field installation of nipples and instruments.
   6. Insulation. The insulation shall be formed-in-place closed-cell polyurethane foam providing intimate contact with both the core pipe and casing pipe. It shall be 90-95 percent closed cell with a 2 lb/cu.ft. density. Provide a thermal conductivity coefficient of 0.16 BTU/hr (sq. ft.) (F/In.) at 73°F. Minimum thickness shall be 1".
   7. After hydrostatic testing of the carrier pipe, field joints shall be insulated, with kits provided by the pre-insulated pipe manufacturer. Field joint insulation shall be applied in straight sections by pour foaming in-situ, using molds furnished by the system manufacturer. Field joint insulation surface shall be sealed with a heat shrinkable sleeve. Insulation and jacket on all fittings shall be factory applied after pipe spool fabrication, extending continuously onto adjoining straight section(s) of pipe.

C. Casing:
   1. The casing shall be seamless high-density polyethylene with a minimum thickness of 120 mils.
   2. Joints and Fittings. Field joints shall be made only on straight pipe sections. Fitting insulation and casing shall be factory applied.
3. End Seals. The end of each pipe casing joint shall be sealed to the carrier pipe with a preformed flexible polyethylene end seal or by turning down the jacket to seal against the service pipe. End seals shall be factory applied and bonded to the jacket and carrier pipe. End seals/jacket combinations are to be certified by an independent testing laboratory at 20-foot head pressure for 48-hour test period to maintain a watertight seal. End seal certification shall be submitted for approval. Mastic end seals are not acceptable. O-Ring seals are not acceptable. Provide a preformed heat shrink end seal at all field cuts.

4. Underground piping shall be bedded in compacted granular material ASTM C33 gradation 67, with pea gravel 8" under, around and 6" over laid pipe. Cover with densely compacted backfill. Piping trench for a distance of 8'-0" out from building shall not have pea gravel or sand but shall be select backfill densely compacted as specified for building floor slab backfill.

5. Prepare shop drawings to scale indicating the entire site plan with all underground piping thereon. Elevations of all piping shall be indicated. Details of piping and bedding shall be drawn indicating size materials and arrangement. All shop drawings shall be submitted to the pipe manufacturer for their review and shall bear their stamp of approval prior to A/E review. Excavation for and laying of pipe shall not be started until these shop drawings are approved.

6. Prior to fabrication, the Contractor shall review drawings of all disciplines, visit the site and make on-site measurements to ascertain that no interferences will be encountered upon installation. If there are any significant deviations from the Contract Drawings, produce "Interference Drawings." Before fabricating the piping and installing related equipment, the Contractor shall send a letter to the Owner stating that no interferences exist in the proposed installation. By submitting this letter, the Contractor certifies that he has performed the above requirements and no interferences will result during installation. There will be no additional compensation for minor deviations.

7. Piping has a design pressure of 150 psig and shall be tested at a pressure of 225 psi. Test only one line at a time. Isolate piping from building and existing system during tests. Do not insulate field weld joints until after hydrotest.

8. Factory technical assistance shall be provided by an authorized representative of the manufacturer. The representative shall be thoroughly qualified in knowledge and experience in the proper installation methods of this type of piping system. Refer to paragraphs 1.04 A & B for additional requirements.

2.03 PIPE HANGERS AND SUPPORTS
SECTION 23 21 13
HYDRONIC PIPING

A. Conform to ASME B31.9; ASTM F 708; MSS SP-58; MSS SP-69; and MSS SP-89.

B. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Malleable iron; or Carbon steel, adjustable swivel, split ring.

C. Hangers for Pipe Sizes 2 to 4 Inches: Carbon steel, adjustable, clevis.

D. Multiple or Trapeze Hangers for Pipe Sizes to 4 inches: Steel channels with welded spacers and hanger rods.

E. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

F. Wall Support for Pipe Sizes 4 to 5 Inches: Welded steel bracket and wrought steel clamp.

G. Vertical Support: Steel riser clamp.

H. Floor Support for Pipe Sizes to 4 Inches: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

I. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

J. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

K. Inserts: Malleable iron case of steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.04 UNIONS, FLANGES, AND COUPLINGS

A. Flanges for Pipe Over 2 Inches:
   1. Ferrous Piping: 150 psig forged steel, slip-on.
   2. Copper Piping: Bronze.

B. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.05 BALL VALVES

A. Manufacturers:
   1. Conbraco Industries.
   2. Nibco, Inc.
   3. Milwaukee Valve Company:
   4. Substitutions: Engineer approved equal.

B. Up To and Including 2 Inches:
1. Bronze or Stainless steel, two piece body, chrome plated bass or stainless steel ball, standard port, teflon seats and stuffing box ring, lever handle with balancing stops, solder or threaded ends to match piping.

C. Over 2 Inches:
1. Cast steel body, chrome plated steel ball, teflon seat and stuffing box seals, lever handle, or gear drive handwheel for sizes 10 inches and over located 10 feet above finished floor, flanged ends.

PART 3 - EXECUTION

3.01 PREPARATION

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.


F. Remove scale and dirt on inside and outside before assembly.

G. Prepare piping connections to equipment with flanges or unions.

H. Keep open ends of pipe free from scale and dirt. Whenever work is suspended during construction protect open ends with temporary plugs or caps.

I. After completion, fill, clean, and treat systems per specification section 23 25 00 Hydronic Water Treatment.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Route piping in orderly manner, plumb and parallel to building structure, and maintain gradient.

C. Install piping to conserve building space and avoid interference with use of space.

D. Sleeve pipe passing through partitions, walls, and floors.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
F. Inserts:
1. Provide inserts for placement in concrete formwork.
2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut flush with top of slab.

G. Pipe Hangers and Supports:
1. Install in accordance with ASME B31.9; ASTM F 708; and MSS SP-89.
2. Support horizontal piping as scheduled.
3. Place hangers within 12 inches of each horizontal elbow.
4. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
5. Support vertical piping independently of connected horizontal piping.
6. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
7. Provide copper plated hangers and supports for copper piping.
8. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

H. Provide clearance for installation of insulation and access to valves and fittings.

I. When more than one piping system material is selected, ensure systems components are compatible and joined to ensure the integrity of the system is not jeopardized. Provide necessary joining fittings. Ensure flanges, unions, and couplings for servicing are consistently provided.

J. Use unions and flanges downstream of valves and at equipment or apparatus connections. Use dielectric unions where joining dissimilar materials. Do not use direct welded or threaded connections.

K. Use gate valves for throttling, bypass, or manual flow control services.

L. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors with General Contractor prior to ordering.

M. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welds.
N. Prepare unfinished pipe, fittings, supports, and accessories ready for finish painting.

O. Install valves with stems upright or horizontal, not inverted.

P. Install piping in accordance with the specifications, pipe manufacturer's published installation instructions and as shown on the drawings.

Q. Field Supervision. Factory trained field supervision shall be provided for all critical periods of pre-insulated pipe installation including but not limited to: unloading, field joint construction, field insulation of joints and fittings, and testing.

R. Field Joints and Valves. All field joints and valves shall be insulated and sealed after successful hydrostatic test. Joint areas shall be backfilled after installation of insulation and jacket in accordance with manufacturer's recommendation.

S. Install pre-formed heat shrink seals on all field cuts of pre-insulated piping shall be in accordance with manufacturer’s published recommendations:

T. Backfill. Place pipe system on an 8-inch tamped bed of granular material as indicated. Evenly fill trench width with 8 inch layers of backfill material compacting each layer to a minimum compaction of 95% of Standard Density.

U. The Contractor shall contact the Owner's water treatment company and purchase and install recommended chemicals for flushing and treatment of the piping system. Initial charges of chemicals for cleaning and treatment of the piping system shall be at the expense of the Contractor.

V. Clean piping prior to filling system by using a pressurized water jet system that is drawn thru the piping system. The Contractor shall provide all temporary connections, piping, valves, air vents, portable pumps, shot feeders, etc. as required for cleaning, filling and draining the piping system. Submit a complete cleaning plan to the Engineer for review, include a drawing showing all temporary connections. Provide a written plan for filling the system, method of adding chemicals, description of chemicals to be used, and method of the disposal of cleaning water. Disposal of chemically treated water is to be in accordance with City of Houston requirements. After cleaning is complete introduce the approved chemicals into the system and provide a chemical analysis report of the treated water in the piping. After the report is approved by the owner, receive approval from the Owner to open the piping system to the buildings.

W. Test each line separately, apply a hydraulic pressure of 225 psig and carefully check for leaks over the 4-hour test period. New distribution system shall be completely isolated from existing distribution system during testing by means of a weld end cap or flat plate. Repair all leaks and retest the system until proved leak tight. Note: Backfill piping as required, leaving joints exposed prior to subjecting piping to pressure test. After test, Contractor shall connect new
piping to existing piping.
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Air vents.
B. Strainers.
C. Flow indicators, controls, meters.
D. Test Plugs
E. Circuit Setters

1.02 RELATED SECTIONS

A. Section 23 21 13 Hydronic Piping

1.03 SUBMITTALS

A. Submit in accordance with Section 01 requirements.

B. Product Data: Provide product data for manufactured products and assemblies required for this project. Include component sizes, rough-in requirements, service sizes, and finishes. Include product description, mode and dimensions.

C. Manufacturer's Installation Instructions: Indicate hanging and support methods, joining procedures.

D. Maintenance Data: Include installation instructions, assembly views, lubrication instructions, and replacement parts list.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 - PRODUCTS
2.01 AIR VENTS

A. Manufacturers:
   1. Armstrong International, Inc
   2. ITT Bell & Gossett
   3. Taco, Inc

B. Manual Type: Short vertical sections of pipe to form air chamber, with brass needle valve at top of chamber.

C. Float Type:
   1. Brass or semi-steel body, copper, polypropylene, or solid non-metallic float, stainless steel valve and valve seat; suitable for system operating temperature and pressure; with isolating valve.
   2. Cast iron body and cover, float, bronze pilot valve mechanism suitable for system operating temperature and pressure; with isolating valve.

D. Washer Type:
   1. Brass with hygroscopic fiber discs, vent ports, adjustable cap for manual shut-off, and integral spring loaded ball check valve.

2.02 STRainers

A. Manufacturers:
   1. Armstrong International
   2. Green Country Filtration
   3. WEAMCO
   4. ITT Bell & Gossett

B. Size 2 inch and under:
   1. Screwed brass or iron body for 175 psi working pressure, Y pattern with 1/32 inch stainless steel perforated screen.

C. Size 2-1/2 inch to 4 inch:
   1. Flanged iron body for 175 psi working pressure, Y pattern with 3/64 inch stainless steel perforated screen.

2.03 FLOW CONTROLS

1. See Specification Section 230900 Direct Digital Controls.

2.04 TEST PLUGS

A. Manufacturers
SECTION 23 21 14
HYDRONIC SPECIALTIES

1. Sisco or approved equal.

B. Install a test plug of solid brass (stainless steel or dezinc brass) into appropriately sized welded socket, threaded boss, valve or vessel. Plugs shall be located per project drawings. Test plug shall have a dual seal core of Nordel, good up to 350 F and shall be rated zero leakage from vacuum to 1000 psig. Plug shall be capable of receiving a pressure or temperature probe.

C. Owner should be provided with master test kit. Kit shall contain two pressure gauges of suitable range, two gauge adapters and a sturdy carrying case.

2.05 CIRCUIT SETTER

A. The Bell & Gossett Circuit Setter calibrated balance valve is a precision machined triple purpose balancing instrument. It is precisely calibrated for use as a presettable balance valve, variable orifice flow meter and positive shut-off service valve.

B. Valves are furnished with a calibrated nameplate and memory stop indicator which permits the value to be preset to a fixed open position and then closed for service without disturbing valve setting.

C. Valves are equipped with capped readout valves fitted with internal check valves. Sizes 2-1/2"-4" (brass ball) include a 1/4" NPT tapped and plugged drain port as standard.

D. Maximum operating temperature
   1. 250°F

E. Maximum working pressure
   1. 175 psig

F. Construction Sizes 2-1/2"-4"
   1. Body: Cast Iron
   2. Ball: Brass
   3. Seat Rings: Glass and carbon filled TFE
   4. Readout Valves: Brass with EPT check valve
   5. Stem "O" Ring: EPDM
   6. Maximum working pressure: 175 psig

G. Construction Sizes 1/2"-2-1/2"
   1. Body: Bronze
   2. Ball: Brass
   3. Seat Rings: Glass and carbon filled TFE
   4. Readout Valves: Brass with EPT check valve
   5. Stem "O" Ring: EPDM
6. Maximum working pressure: 300 psig NPT models

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install specialties in accordance with manufacturer’s instructions.

B. Where large air quantities can accumulate, provide enlarged air collection standpipes.

C. Provide manual air vents at system high points and as indicated.

D. For automatic air vents in ceiling spaces or other concealed locations, provide vent tubing to nearest drain.

E. Provide valved drain and hose connection on strainer blow down connection.

F. Select system relief valve capacity so that it is greater than make-up pressure reducing valve capacity. Select equipment relief valve capacity to exceed rating of connected equipment.

G. Pipe relief valve outlet to nearest floor drain.

H. Where one line vents several relief valves, make cross sectional area equal to sum of individual vent areas.

END OF SECTION