ADVERTISEMENT FOR BIDS

Sealed bids will be received by the Purchasing Department of The University of Louisiana at Monroe, via mail or delivered to Coenen Hall Room 140, 700 University Avenue, Monroe, LA 71209-2250, until 2:00 P.M., June 26, 2025, for the following:

Bid #50006-072 – Hemphill Hall Chiller Replacement

Complete Bidding Documents may be obtained from: The University of Louisiana at Monroe, Purchasing Department, 4014 LaSalle Street, Room 140, Monroe, Louisiana, 71209-2250, via fax request at 318.342.5218 or the State of Louisiana LaPac page: https://wwwcfprd.doa.louisiana.gov/osp/lapac/pubmain.cfm by using Bid No. 50006-072.

All bids shall be accompanied by Bid Security in an amount of five percent (5.0%) of the sum of the base bid and all alternates. The form of this security shall be as stated in the Instruction to Bidders included in the Bid Documents for this project.

There will be a non-mandatory pre-bid meeting held on June 11, 2025 at 10:00 a.m. at ULM HR training room located at Coenen Hall Room 106, 4014 LaSalle Street, Monroe, Louisiana 71209. The Architect will be available to answer questions related to the plans and specifications.

The successful Bidder shall be required to furnish a Performance Bond written as described in the Instruction to Bidders included in the Bid Documents for this project.

Bids shall be accepted from Contractors who are licensed under LA R.S. 37:2150-2192 in the areas of: Mechanical and Electrical. Bidder is required to comply with provisions and requirements of LA R.S. 38:2212(A)(1)(a). No bid may be withdrawn for a period of thirty (30) days after receipt of bids, except under the provisions of LA R.S. 38:2214.

The Owner reserves the right to reject any and all bids for just cause. In accordance with LA R.S. 38:2212(B)(2), the provisions and requirements of this Section, those stated in the advertisement for bids, and those required on the bid form shall not be considered as informalities and shall not be waived by any public entity.

STATE OF LOUISIANA

THE UNIVERSITY OF LOUISIANA MONROE
MONROE, LOUISIANA
A Member of the University of Louisiana System

INVITATION TO BID
FOR
BID NO. 50006-072

ISSUING AGENCY:	The University of Louisiana Monroe Purchasing Department 700 University Avenue, Coenen Hall 140 Monroe, LA 71209
PROCUREMENT SPECIALIST:	Shakeya Bennett/Email: rodgers@ulm.edu
Telephone:	318.342.5208
REQUISITIONED BY:	Michael Davis
Telephone:	318.342.5171
RELEASE DATE:	May 29, 2025
OPENING DATE:	June 26, 2025
BID OPENING TIME:	2:00 p.m., Central Time
BID OPENING LOCATION:	The University of Louisiana at Monroe Purchasing Department Coenen Hall 140 700 University Avenue Monroe, La 71209

This ITB is available in electronic form at https://wwwcfprd.doa.louisiana.gov/osp/lapac/pubmain.cfm. It is available in printed form by submitting a written request to the email listed above. It is the Bidder's responsibility to check the Office of State Purchasing LaPAC website frequently for any possible addenda that may be issued. ULM is not responsible for a bidder's failure to download any addenda documents required to complete an Invitation to Bid.

Definitions

(1) "Alternate" means an item on the bid form that may either increase or decrease the quantity of work or change the type of work within the scope of the project, material, or equipment specified in the bidding documents, or both.

(2) "Bidding documents" means the bid notice, plans and specifications, bid form, bidding instructions, addenda, special provisions, and all other written instruments prepared by or on behalf of a public entity for use by prospective bidders on a public contract.

(3)(a) "Change order" means any contract modification that includes an alteration, deviation, addition, or omission as to a preexisting public work contract, which authorizes an adjustment in the contract price, contract time, or an addition, deletion, or revision of work.

(b) "Change order outside the scope of the contract" means a change order which alters the nature of the thing to be constructed or which is not an integral part of the project objective.

(c) "Change order within the scope of the contract" means a change order which does not alter the nature of the thing to be constructed and which is an integral part of the project objective.

(4) "Contractor" means any person or other legal entity who enters into a public contract.

(5)(a) "Emergency" means an unforeseen mischance bringing with it destruction or injury of life or property or the imminent threat of such destruction or injury or as the result of an order from any judicial body to take any immediate action which requires construction or repairs absent compliance with the formalities of this Part, where the mischance or court order will not admit of the delay incident to advertising as provided in this Part. In regard to a municipally owned public utility, an emergency shall be deemed to exist and the public entity may negotiate as provided by R.S. 38:2212(P) for the purchase of fuel for the generation of its electric power where the public entity has first advertised for bids as provided by this Part but has failed to receive more than one bid.

(b) An "extreme public emergency" means a catastrophic event which causes the loss of ability to obtain a quorum of the members necessary to certify the emergency prior to making the expenditure to acquire materials or supplies or to make repairs necessary for the protection of life, property, or continued function of the public entity.

(6) "Licensed design professional" means the architect, landscape architect, or engineer who shall have the primary responsibility for the total design services performed in connection with a public works project. Such professional shall be licensed as appropriate and shall be registered under the laws of the state of Louisiana.

(7)(a) "Louisiana resident contractor", for the purposes of this Part, includes any person, partnership, association, corporation, or other legal entity and is defined as one that either:

(i) Is an individual who has been a resident of Louisiana for two years or more immediately prior to bidding on work,

(ii) Is any partnership, association, corporation, or other legal entity whose majority interest is owned by and controlled by residents of Louisiana, or

(iii) For two years prior to bidding has maintained a valid Louisiana contractor's license and has operated a permanent facility in the state of Louisiana and has not had a change in ownership or control throughout those two years.

(b) For the purposes of Item (a)(ii) of this Paragraph, ownership percentages shall be determined on the basis of:

(i) In the case of corporations, all common and preferred stock, whether voting or nonvoting, and all bonds, debentures, warrants, or other instruments convertible into common or preferred stock.

(ii) In the case of partnerships, capital accounts together with any and all other capital advances, loans, bonds, debentures, whether or not convertible into capital accounts.

(8) "Negotiate" means the process of making purchases and entering into contracts without formal advertising and public bidding with the intention of obtaining the best price and terms possible under the circumstances.

(9) "Probable construction costs" means the estimate for the cost of the project as designed that is determined by the public entity or the designer.

(10) "Public contract" or "contract" means any contract awarded by any public entity for the making of any public works or for the purchase of any materials or supplies.
(11) "Public entity" means and includes the state of Louisiana, or any agency, board, commission, department, or public corporation of the state, created by the constitution or statute or pursuant thereto, or any political subdivision of the state, including but not limited to any political subdivision as defined in Article VI Section 44 of the Constitution of Louisiana, and any public housing authority, public school board, or any public officer whether or not an officer of a public corporation or political subdivision. "Public entity" shall not include a public body or officer where the particular transaction of the public body or officer is governed by the provisions of the model procurement code.
(12) "Public work" means the erection, construction, alteration, improvement, or repair of any public facility or immovable property owned, used, or leased by a public entity.
(13) "Responsive bidder" means the apparent low bidder who submits the proper information or documentation as required by the bidding documents within the ten-day period
(14) "Responsible bidder" means contractor or subcontractor who has an established business and who has demonstrated the capability to provide goods and services in accordance with the terms of the contract, plan, and specifications without excessive delays, extensions, cost overruns, or changes for which the contractor or subcontractor was held to be responsible, and who does not have a documented record of past projects resulting in arbitration or litigation in which such contractor or subcontractor was found to be at fault. Responsible Bidder will have a negotiable net worth, or shall be underwritten by an entity with a negotiable net worth, which is equal to or exceeds in value the total cost amount of the public contract as provided in the bid submitted by such bidder. All property comprising the negotiable net worth shall be pledged and otherwise unencumbered throughout the duration of the contract period.
(15) "Written" or "in writing" means the product of any method of forming characters on paper, other materials, or viewable screen, which can be read, retrieved, and reproduced, including information that is electronically transmitted and stored.

Veteran-Owned and Service-Connected Disabled Veteran-Owned (Veteran Initiative) and Louisiana Initiative for Small Entrepreneurships (Hudson Initiative) Program

This procurement has been designated as suitable for Louisiana certified small entrepreneurships participation.

The State of Louisiana Veteran and Hudson Initiatives small entrepreneurship programs are designed to provide additional opportunities for Louisiana-based small entrepreneurships (sometimes referred to as LaVet's and SE's respectively) to participate in contracting and procurement with the state. A certified Veteran-Owned and Service-Connected Disabled Veteran-Owned small entrepreneurship (LaVet) and a Louisiana Initiative for Small Entrepreneurships (Hudson Initiative) are businesses that have been certified by the Louisiana Department of Economic Development. All eligible vendors are encouraged to become certified. Qualification requirements and online certification are available at https://smallbiz.louisianaeconomicdevelopment.com.

Bidders that are not eligible for certification are encouraged to use Veteran-Owned and Service-Connected Disabled Veteran- Owned and Hudson Initiative small entrepreneurships where sub-contracting opportunities exist.

For a good faith effort, written notification is the preferred method to inform Louisiana certified Veteran Initiative and Hudson Initiative small entrepreneurships of potential subcontracting opportunities. A current list of certified Veteran-Owned and Service-Connected Disabled Veteran-Owned and Hudson Initiative small entrepreneurships may be obtained from the Louisiana Economic Development Certification System at https://smallbiz.louisianaeconomicdevelopment.com. Additionally, a current list of Hudson Initiative small entrepreneurships, which have been certified by the Louisiana Department of Economic Development and have opted to enroll in the State of Louisiana Procurement and Contract (LaPAC) Network, may be accessed from https://wwwcfprd.doa.louisiana.gov/OSP/LaPAC/vendor/srchven2.cfm. You may then determine the search criteria (i.e. alphabetized list of all certified vendors, by commodities, etc.), and select "SmallE".

Copies of notification to at least three (or more) certified Veteran Initiative and Hudson Initiative small entrepreneurships will satisfy the notification requirements. Notification must be provided to the certified entrepreneurships by the bidder in writing no less than five working days prior to the date of bid opening. Notification must include the scope of work, location to review plans and specifications (if applicable), information about required qualifications and specifications, any bonding and insurance information and/or requirements (if applicable), and the name of a person to contact. If a certified Veteran-Owned or Service- Connected Disabled Veteran-Owned or Hudson Initiative small entrepreneurship was not selected, the bidder must certify and maintain written justification of the selection process. The state reserves the right to request confirmation of this information at any time.

In the event questions arise after an award is made relative to the bidder's good faith efforts, the bidder will be required to provide supporting documentation to demonstrate its good faith subcontracting plan was actually followed. If it is at any time determined that the contractor did not in fact perform its good faith subcontracting plan, the contract award or the existing contract may be terminated.

Contractors will be required to report Veteran-Owned and Service-Connected Disabled Veteran-Owned and Hudson Initiative small entrepreneurship subcontractor or distributor participation and the dollar amount of each to the ULM Purchasing Department along with the Clear Lien.

The statutes (LA R.S. 39:2171 *et. seq.*) concerning the Veteran Initiative may be viewed at www.legis.la.gov; and the statutes (LA R.S 39:2001 *et. seq.)* concerning the Hudson Initiative may be viewed at www.legis.la.gov. The rules for the Veteran Initiative (LAC 19:VII.Chapters 11 and 15) and for the Hudson Initiative (LAC 19:VIII.Chapters 11 and 13) may be viewed at http://www.doa.louisiana.gov/osp/se/se.htm.

The State requires competitive pricing, qualifications, and demonstrated competencies in the selection of contractors.

If you are a Certified Small Entrepreneur (Hudson Initiative), Veteran Owned Small Entrepreneurs, or Service- Connected Disabled Veteran-Owned (Veteran Initiative) vendor, please state your Certification Number below.

Certification No./Date of certification.: _____

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: The University of Louisiana at Monroe
700 University Avenue
Coenen Hall 140
Monroe LA 71209-2250

BID FOR: Hemphill Hall Chiller Replacement
Bid No.: 50006-072

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: John J. Guth Associates, Inc. and dated: April 21, 2025.

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following ADDENDA (where applicable):

No. ____ Dated: _____ No. ____ Dated: _____ No. ____ Dated: _____

No. ____ Dated: _____ No. ____ Dated: _____ No. ____ Dated: _____

TOTAL BASE BID: For all work required by the Bidding Documents for the _____ **we bid the sum of:**

_____ **Dollars ($**_____ **)**

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description**.**

Alternate No. 1 Add add work to replace chiller CH-2 Dollar ($)

Alternate No. 2 Add all work to replace chilled water pumps CWP-1 and CWP-2 ($)

Alternate No. 3 Add all work to replace condense water pumps Cond. W P-3 and Cond W P-4 ($)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

_____

FAX NO.: _____ **EMAIL ADDRESS**: _____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

AUTHORIZED SIGNATURE OF BIDDER *: _____

DATE: _____

* If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization must be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid unless bidder has complied with LA R.S. 38:2212(B)(5)

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218.A is attached to and made a part of this bid. If a bid bond is provided it shall be on the attached form and only on the attached form.

LIQUIDATED DAMAGES shall be assessed at the rate of $500.00 per day each day work is not completed. The contractor shall fully complete all work within 360 consecutive calendar days. Work can begin on TBD, and must be completed, including all Punch List items, by TBD.

BID BOND
FOR

ULM Bid 50006-072 Hemphill Hall Chiller Replacement

Date: _____

KNOW ALL MEN BY THESE PRESENTS:

That _____ of _____

_____ , as Principal, and

_____ , as Surety, are held and firmly bound unto the _____ (Obligee), in the full and just sum of five (5%) percent of the total amount of this bid, including all alternates, lawful money of the United States, for payment of which sum, well and truly be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally firmly by these presents.

Surety represents that it is listed on the current U. S. Department of the Treasury Financial Management Service list of approved bonding companies as approved for an amount equal to or greater that the amount for which it obligates itself in this instrument or that it is a Louisiana domiciled insurance company with at least an A - rating in the latest printing of the A. M. Best's Key Rating Guide. If surety qualifies by virtue of its Best's listing, the Bond amount may not exceed ten percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide.

Surety further represents that it is licensed to do business in the State of Louisiana and that this Bond is signed by surety's agent or attorney-in-fact. This Bid Bond is accompanied by appropriate power of attorney.

THE CONDITION OF THIS OBLIGATION IS SUCH that, whereas said Principal is herewith submitting its proposal to the Obligee on a Contract for:

_____

NOW, THEREFORE, if the said Contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the Contract in writing and give a good and sufficient bond to secure the performance of the terms and conditions of the Contract with surety acceptable to the Obligee, then this obligation shall be void; otherwise this obligation shall become due and payable.

_____ _____

PRINCIPAL (BIDDER) SURETY

BY:_____ BY:_____

AUTHORIZED OFFICER-OWNER-PARTNER AGENT OR ATTORNEY-IN-FACT (SEAL)

INDEMNIFICATION AGREEMENT

_____{Contractor/Lessee} agrees to protect, defend, indemnify, save, and hold harmless, the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants, employees, and volunteers, from and against any and all claims, damages, expenses, and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur, or in any way grow out of, any act or omission of Contractor/Lessee, its agents, servants, and employees, or any and all costs, expenses and/or attorney fees incurred by Contractor/Lessee as a result of any claims, demands, suits or causes of action, except those claims, demands, suits, or causes of action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its officers, agents, servants, employees and volunteers.

Contractor/Lessee agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands, suits, or causes of action at its sole expense and agrees to bear all other costs and expenses related thereto, even if the claims, demands, suits, or causes of action are groundless, false or fraudulent. The State of Louisiana may, but is not required to, consult with the Contractor in the defense of claims, but this shall not affect the Contractor's responsibility for the handling of and expenses for all claims.

Accepted by _____
Company Name

_____
Signature

_____
Title

Date Accepted _____

Is Certificate of Insurance Attached? _____Yes _____No

Contract No. 50006-072 for University of Louisiana at Monroe
State Agency Name

PURPOSE OF CONTRACT: Hemphill Hall Chiller Replacement

LIQUIDATED DAMAGES:

The undersigned agrees that the Owner may retain the sum of Five Hundred Dollars ($500.00) from the amount of the Compensation to be paid him for each day after the above stated completion date, Sundays and Holidays included, that the work remains incomplete. This amount is agreed upon as the proper measure of Liquidated Damages which the Owner will sustain per day by the failure of the undersigned to complete the work at the stipulated time and is not to be construed in any sense as a penalty.

If this proposal shall be accepted and the undersigned shall fail to execute the contract and furnish performance bond as herein provided, then the proposal guarantee shall become the property of the University; otherwise, the said proposal guaranty shall be returned to the undersigned.

Bidder certifies that he has visited the job site at The University of Louisiana at Monroe, and is fully aware of what is expected of the successful bidder (s).

_____
Louisiana Contractor's License Number

_____
Firm Name

_____
Authorized Signature

_____
Title

_____
Phone/Fax Numbers

_____
Date

STATE OF LOUISIANA NAME_____

PARISH OF OUACHITA LOCATION_____

AFFIDAVIT OF COMPLIANCE

Before me, the undersigned authority, duly commissioned and qualified within and for the state and parish aforesaid, personally came and appeared_____

representing_____who, being by me first duly sworn deposed and said that he has read this affidavit and does hereby agree under oath to comply with all provisions herein as follows:

PART I

Section 2224 of Part II of Chapter 10 to Title 38 of the Louisiana Revised Statutes of 1950 as amended.

A. (1) That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and

A. (2) That no part of the contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction of the public building or project were in the regular course of their duties for affiant.

B. No public contract shall be granted to any person, corporation, firm, association, or other organization refusing to execute the affidavit required by Subsection A above.

PART II

Section 2190 of Part I of Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950 as amended.

The affiant, if he be an architect or engineer, or representative thereof, does not own a substantial financial interest, either directly or indirectly, in any corporation, firm, partnership, or other organization which supplied materials for the construction of a public building or project when the architect or engineer has performed architectural or engineering services, either directly or indirectly, in connection with the public building or project for which the materials are being supplied.

For the purpose of this Section, a "substantial financial interest" shall exclude any interest in stock being traded on the American Stock Exchange or the New York Stock Exchange.

That affiant, if subject to the provisions of this section, does hereby agree to be subject to the penalties involved for the violation of this section.

PART III

That affiant does hereby state that he has read and agrees to comply with and be subject to the provisions of Part V of Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950, being Sections 2290 through 2296 of Title 38 as amended.

Signature of Affiant: _____

SWORN TO AND SUBSCRIBED BEFORE ME THIS_____DAY OF_____, 2025 .

Signature of Notary: _____

E-VERIFY AFFIDAVIT

STATE OF LOUISIANA

PARISH OF OUACHITA

BEFORE ME, the undersigned Notary Public PERSONALLY CAME AND APPEARED,

I,_____, the owner/authorized representative of

_____

Company/Individual/Legal Entity Name

who hereby personally and as the authorized representative of the above identified legal person executes this affidavit, as the undersigned Contractor verification of its current and future compliance with LA R.S. 38:2212.10, stating affirmatively that it and each individual, firm or corporation associated with it and engaged in the physical performance of services in the State of Louisiana, under a contract with the University of Louisiana Monroe has registered with, is participating in, and shall continue to participate in a federal work authorization program designated as such under the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, as amended, which is operated by the United States Department of Homeland Security, known as the "E-Verify" program. The Contractor hereby verifies the legal status of all existing and new employees in the State of Louisiana by attesting herein that each is a citizen of the United States or legal aliens as defined by now effective immigration laws of the United States of America.

Contractor shall not assign this Contract or any monies due or to become due hereunder, or subcontract any part of the Work without the prior written consent of University of Louisiana Monroe.

Contractor verifies that Contractor will collect an affidavit in this form from any approved subcontractor and forward a copy to: University of Louisiana Monroe, Purchasing Office 700 University Avenue; Coenen Hall 140; Monroe, LA 71209-2250, no later than five business days of contracting with its subcontractor; however, in no instance shall the affidavit be received after commencement of work by the subcontractor.

_____ _____

Signature of Authorized Signatory **Date E-Verify ID Assigned**

_____ _____

Printed Name of Signatory **E-Verify ID**

_____

Title of Authorized Signatory

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

Notary Signature: _____

Notary Printed Name: _____

Notary/Bar Roll Number: _____

My Commission is For/Expires: _____

PAST CRIMINAL CONVICTIONS ATTESTATION (LA R.S. 39:2192)

STATE OF LOUISIANA

PARISH OF _____

BEFORE ME, the undersigned Notary Public PERSONALLY CAME AND APPEARED,

I,_____ (Appearer) the owner/authorized representative of

_____

Company / Individual / Legal Entity Name

Appearer, as a Bidder on the herein named Project, does hereby attest that:

A. No sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a five percent (5%) ownership in the bidding entity named herein, including any silent or dormant owner or manager, has been convicted of, or has entered a plea of guilty or nolo contendere to, any of the following state crimes or equivalent federal crimes:

(a) Public bribery (R.S. 14:118)
(b) Corrupt influencing (R.S. 14:120)
(c) Extortion (R.S. 14:66)
(d) Money laundering (R.S. 14:230)

B. For five years prior to the project bid date, no sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named herein, including any silent or dormant owner or manager, has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes, during the solicitation or execution of a contract or bid awarded pursuant to the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statutes:

(a) Theft (R.S. 14:67)
(b) Identity Theft (R.S. 14:67.16)
(c) False accounting (R.S. 14:70)
(d) Contractor's misapplication of payments (R.S. 14:202)
(e) Bank fraud (R.S. 14:71.1)
(f) Forgery (R.S. 14:72)
(g) Issuing worthless checks (R.S.14:71)
(h) Malfeasance in office (R.S. 14:134)

_____ _____

Name of Bidder | Signature of Authorized Signatory of Bidder

Bid 50006-072 Hemphill Hall Chiller Replacement | _____

Project Name/Number | Title of Authorized Signatory

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE DAY OF_____, 2025

Notary Signature: _____

Notary Printed Name: _____

Notary/Bar Roll Number: _____

My Commission is For/Expires: _____

University of Louisiana Monroe
NON-SOLICITATION AND UNEMPLOYMENT AFFIDAVIT
(Pursuant to LA R.S. 38:2224 and LA R.S. 23:1726(B))

STATE OF LOUISIANA

PARISH OF _____

BEFORE ME, the undersigned Notary Public PERSONALLY CAME AND APPEARED,

I,_____ (Appearer) the owner/authorized representative of

_____
Company / Individual / Legal Entity Name

who, being first duly sworn, deposed and state that I personally and as an authorized representative of the above identified legal person executes this continuing affidavit stating that neither the above named Contractor nor a person acting on its behalf, either directly or indirectly, employed, paid, nor promised any gift, consideration or commission to any person or legal entity to procure or assist in procuring this public contract, other than persons regularly employed by Contractor whose services were in the regular course of their duties for Contractor in connection with the construction, alteration or demolition of a public building or project.

The above named Contractor, if awarded, continually affirms that no part of the contract price received by Contractor was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services were in the regular course of their duties for Contractor. The above named Contractor has neither in the past three years received a final determination that the named Contractor has knowingly or willfully failed to properly classify an individual as an employee nor failed to pay unemployment.

The above named Contractor hereby attests and certifies that it does not have any unpaid assessment or penalty levied against it regarding unemployment compensation and currently does and will continue to properly classify each employee. Contractor verifies that Contractor will collect an affidavit in this form from any approved subcontractor and forward a copy to: University of Louisiana Monroe, 700 University Avenue; Purchasing Office, Coenen Hall 140; Monroe, LA 71209-2250 no later than five business days after contracting with its subcontractor; however, in no instance shall the affidavit be received after commencement of work by the subcontractor.

_____ Signature of Authorized Signatory	SUBSCRIBED AND SWORN BEFORE ME ON THIS _____DAY OF_____2025 .
_____ Printed Name of Signatory	_____ Notary Signature
_____ Title of Authorized Signatory	Printed Notary Name: _____
Bid 50006-072 Hemphill Hall Chiller Replacement Project Name/Number	Notary/Bar Roll Number: _____ My Commission is for/expires on: _____

RELATING TO THE PROHIBITION OF DISCRIMINATORY BOYCOTTS OF ISRAEL IN STATE PROCUREMENT STATEMENT

As stated in Executive Order number JBE 2018-15 Relating to the Prohibition of Discriminatory Boycotts of Israel in State Procurement, for bids over $100,000, and for vendors with greater than five (5) employees:

Consistent with existing Louisiana non-discrimination provisions and regulations governing purchases, executive branch agencies may not execute a procurement contract with a vendor if that vendor is engaging in a boycott of Israel. Further, executive branch agencies shall reserve the right to terminate any procurement contract with a vendor that engages in a boycott of Israel during the term of the contract.

By submitting a response to this solicitation, the bidder or proposer certifies and agrees that the following information is correct: In preparing its response, the bidder or proposer has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israeli-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The bidder also has not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. The state reserves the right to reject the response of the bidder or proposer if this certification is subsequently determined to be false, and to terminate any contract awarded based on such a false response

The Contractor certifies to The University of Louisiana at Monroe that:

a. it is not engaging in a boycott of Israel; and
b. it will, for the duration of its contractual obligations, refrain from a boycott of Israel.

_____
Firm Name

_____
Authorized Signature

_____
Printed Name

_____
Title

_____
Date

_____ Initial here if the bid is less than $100,000, or your firm has fewer than five employees

The University of Louisiana at Monroe

Monroe, Louisiana

This Agreement, made and executed, on this day of the month_____in the year of our Lord, TWO THOUSAND and TWENTY FIVE, by and through _____ , The University of Louisiana at Monroe, the Party of the First Part, and hereinafter designated as "University" and_____, Contractor, domiciled and doing business in _____ , Party of the Second Part, and hereinafter designated as Contractor.

WITNESSETH, That, in consideration of the covenants and agreements herein contained to be performed by the parties hereto and of the payments hereinafter agreed to be made, it is mutually agreed as follows:

The Contractor shall and will provide and furnish all materials, equipment and labor and perform the work required to complete in a thorough and workmanlike manner, to the satisfaction of the University, project entitled, in strict accordance with the Plans and Specifications which are on file in the Purchasing Department at The University of Louisiana at Monroe. The bid on this project, numbered Bid 50006-000, was opened on_____, at _____2:00 p.m. The plans and specifications and the Proposal Form are made a part hereof as fully as if set out herein and hereby become a part of this contract. Contract amount is $_____.

It is agreed and understood between the parties hereto that the Contractor agrees to accept and the University agrees to pay for the work at the price stipulated in said Proposal, such payment to be in lawful money of the United States, and the payment shall be made at the time and the manner set forth.

The State may terminate this Agreement at any time by giving thirty (30) days written notice to contractor of such termination or negotiating with the Contractor an effective date.

The State may terminate this agreement for cause based upon the failure of Contractor to comply with the terms and/or conditions of the Agreement provided that the State shall give the Contractor written notice specifying the Contractor's failure. If within thirty (30) days after receipt of such notice, the Contractor shall not have corrected such failure or, in the case of failure which cannot be corrected in thirty (30) days, begun in good faith to correct such failure and thereafter proceeded diligently to complete such correction, then the State may, at its option, place the Contractor in default and the Agreement shall terminate on the date specified in such notice.

The Contractor may exercise any rights available to it under Louisiana law to terminate for cause upon the failure of the State to comply with the terms and conditions of this agreement, provided that the Contractor shall give the State written notice specifying the State's failure and a reasonable opportunity for the State to cure the defect.

Any claim or controversy arising out of the agreement shall be resolved by the provisions of LA R.S. 39:1672.2-1672.4.

This Contract shall be governed by and interpreted in accordance with the laws of the State of Louisiana, including but not limited to LA R.S. 39:1551-1736; rules and regulations; executive orders; standard terms and conditions, special terms and conditions, and specifications listed in the RFP (if applicable); and this Contract. Venue of any action brought, after exhaustion of administrative remedies, with regard to this Contract shall be in the Fourth Judicial District Court, Parish of Ouachita, State of Louisiana.

Contractor acknowledges and agrees to comply with the provisions of LA R.S. 38:2212.10 and federal law pertaining to E-Verify in the performance of services under this Contract.

The continuation of this contract is contingent upon the appropriation of funds to fulfill the requirements of the contract by the legislature. If the legislature fails to appropriate sufficient monies to provide for the continuation of the contract, or if such appropriation is reduced by the veto of the Governor or by any means provided in the appropriations act to prevent the total appropriation for the year from exceeding revenues for that year, or for any other lawful purpose, and the effect of such reduction is to provide insufficient monies for the continuation of the contract, the contract shall terminate on the date of the beginning of the first fiscal year for which funds are not appropriated.

The contractor agrees to abide by the requirements of the following as applicable: Title VI of the Civil Rights Act of 1964 and Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972, Federal Executive Order 11246 as amended, the Rehabilitation Act of 1973, as amended, the Vietnam Era Veteran's Readjustment

Assistance Act of 1974, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, the Fair Housing Act of 1968 as amended, and contractor agrees to abide by the requirements of the Americans with Disabilities Act of 1990.

Contractor agrees not to discriminate in its employment practices, and will render services under this contract without regard to race, color, religion, sex, national origin, veteran status, political affiliation, or disabilities. Any act of discrimination committed by Contractor, or failure to comply with these statutory obligations when applicable shall be grounds for termination of this contract.

Contractor has a continuing obligation to disclose any suspensions or debarment by any government entity, including but not limited to General Services Administration (GSA). Failure to disclosed may constitute grounds for suspension and/or termination of the Contract and debarment from future Contracts.

Contractor, and each tier of Subcontractors, shall certify that it is not on the List of Parties Excluded from Federal Procurement or Nonprocurement Programs promulgated in accordance with E.O.s 12549 and 12689, "Debarment and Suspension," as set forth at 24 CFR part 24.

The State Legislative auditor, federal auditors and internal auditors of the State, or others so designated by the State, shall have the option to audit all accounts directly pertaining to the contract for a period of five (5) years after project acceptance or as required by applicable State and Federal Law. Records shall be made available during normal working hours for this purpose.

The complete Agreement between the parties with respect to the subject matter and all prior discussions and negotiations are merged into this contract. This Agreement is entered into with neither party relying on any statement or representation made by the other party not embodied in this Agreement and there are no other agreements or understanding changing or modifying the terms. This Agreement shall become effective upon final statutory approval.

No amendment or variation of the terms of this Agreement shall be valid unless made in writing, signed by the parties and approved as required by law. No oral understanding or agreement not incorporated in the contract is binding on any of the parties.

If any term or condition of this Agreement, or the application thereof, is held invalid, such invalidity shall not affect other terms, conditions or applications which can be given effect without the invalid term, condition or application; to this end the terms and conditions of this Agreement are severable.

Performance shall not begin until issuance of Notice to Proceed and Purchase Order.

The University of Louisiana at Monroe	Contractor
Signature: _____	Signature: _____
Title: _____	Title: _____

INSTRUCTIONS TO BIDDERS

ARTICLE 1

DEFINITIONS

1.1 The Bidding Documents include the following:

a. Advertisement for Bids
b. Instructions to Bidders
c. Bid Form
d. Bid Bond
e. Affidavit of Compliance with LA R.S. 38
f. General Requirements
g. Supplementary Conditions
h. Technical Specifications
i. Addenda issued during bid period must be acknowledged on returned bid form

1.2 Addenda are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the bidding documents, including Drawings and Specifications, by additions, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the Contract is executed.

ARTICLE 2

BIDDER'S REPRESENTATION

2.1 Each bidder by submitting a bid represents that s/he has read and understands the bidding documents.

2.2 Each bidder by making a bid represents that s/he has visited the site and familiarized themselves with the local conditions under which the work is to be performed.

2.3 Each bidder by submitting a bid understands they must be fully qualified under any state or local licensing law for Contractors in effect at the time and at the location of the project before submitting a bid. In the State of Louisiana; only the bids of contractors and sub-contractors duly licensed under LA R.S. 37:2150, et. seq., will be considered, if applicable. The Contractor shall be responsible for ensuring all Sub-contractors or prospective Sub-contractors are duly licensed in accordance with the statute above.

2.4 Each bidder submitting a bid understands that ULM's Public Works Policy related to contractor licensure is that a contractor's license is required for any/all projects with an anticipated/bid cost greater than $50,000

ARTICLE 3

BIDDING PROCEDURES

3.1 Each responsive bid package must be received by the University by the date and time stated in the Advertisement for Bid or Invitation to Bid in this Bid Packet, and include, at a minimum the following documents.

a. Bid Form
b. Bid Security or Bid Bond
c. Acknowledgement of Addenda
d. Base Bid
e. Alternates Bid (if applicable)
f. Signature of Bidder
g. Name, Title, and Address of Bidder
h. Name of Firm or Joint Venture
i. Corporate Resolution or written evidence of the authority of the person signing the bid
j. Louisiana's Contractor's License Number
k. Unit Prices, where required, including a description for each unit

3.2 The following items must be provided by the apparent lowest bidder not later than ten (10) calendar days after bid opening, however, it is strongly encouraged that these items be returned with the bid packet. If the apparent lowest bidder was not in attendance at the bid opening, the University Purchasing Department will notify apparent lowest bidder by email, if provided. This will not be the notification of award. If Bidder has not heard from the University within three (3) days, the Bidder should contact the University Purchasing Department. In no instance will the ten (10) days be waived or altered.

a. Notarized Contractor's Affidavit
b. E-Verify Affidavit
c. Past Criminal Convictions Affidavit
d. Non-Solicitation and Unemployment Affidavit
e. Insurance Certificate
f. Resolution, if incorporated

3.3 Once the above items from 3.1 and 3.2 have been received by the University, the University will soon thereafter provide the Bidder with three (3) executed contract originals. The following items must then be promptly returned to the University:

a. One (1) original, fully-executed contract
b. Payment & Performance Bond
c. Proof of filing with the Ouachita Parish Clerk of Court

3.4 Upon receipt of all of the items listed in section 3.1, 3.2 and 3.3 above, the University will issue the Purchase Order (PO) and Notice to Proceed.

3.5 Bids must be prepared on the forms provided by the Owner and submitted in accordance with the Instructions to Bidders.

3.6 A bid will be considered invalid if not deposited at the designated location prior to the time and date for receipt of bids indicated in the Advertisement or Invitation to bid, or prior to any extension thereof issued to the bidders.

3.7 Unless otherwise provided in any supplement to these Instructions to Bidders, no bidder shall modify, withdraw or cancel his bid or any part thereof for thirty (30) days after the receipt of bids. However, written request (letter or email) for the withdrawal of a bid or any part thereof will be granted if the request is received prior to the specified time of opening. Formal bids, amendments thereto or request for withdrawal of bids or any part thereof received after time specified for bid opening will not be considered whether delayed in the mail or for any other cause whatsoever.

3.8 Bids are to be sealed and will be received until the time specified and at the place specified in the advertisement for bids. It shall be the specific responsibility of the Bidders to deliver sealed bids to The University of Louisiana at Monroe at the appointed place and prior to the announced time for the opening of bids. Late delivery of a bid for any reason including late delivery by the United States Mail shall disqualify the bid.

3.9 Prior to the receipt of bids, Addenda, if any, will be mailed or delivered (hard copy or email) to each person or firm recorded by the Owner as having received the bidding documents and will be available for inspection wherever the bidding documents are kept available for that purpose. Addenda issued after receipt of bids will be mailed or delivered only to the sealed bidder.

3.10 **Bids for Public Works will not be considered or accepted unless the bid is accompanied by bid security in an amount of not less than five percent (5%) of the sum of the Base Bid and any Alternates.** The bid security shall be in the form of a certified check drawn on a bank insured by the Federal Deposit Insurance Corporation, or a bid bond written by a surety company licensed to do business in Louisiana, accompanied by appropriate power of attorney and in favor of The University of Louisiana at Monroe.

3.11 All Bids and Sureties must be signed by a duly authorized person of the firm or corporation and be accompanied by legal evidence authorizing the signature as valid.

3.12 Any interpretation, correction or change of the Bidding Documents will be made by Addendum. Interpretations, corrections or changes of the Bidding Documents made in any other manner will not be binding, and bidders shall not rely upon such interpretations, corrections and changes.

3.13 If bidding other than as specified, an indication must be made on the bid form, stating manufacturer's name and model number(s) being submitted for bid. Detailed specifications, drawings, pictures, brochures, diagrams or any other literature or information necessary to determine the equality of the bid response must be included with the bid form.

ARTICLE 4

EXAMINATION OF BIDDING DOCUMENTS

4.1 Each bidder shall examine the bidding documents carefully and, not later than seven days prior to the date for receipt of bids, shall make written request to the Owner for interpretation or correction of any ambiguity, inconsistency or error therein which he may discover. Any interpretation or correction will be issued as an Addendum by the Owner. Only a written interpretation or correction by Addendum shall be binding. No bidder shall rely upon any interpretation or correction given by any other method.

ARTICLE 5

SUBSTITUTIONS

5.1 Each bidder represents that his bid is based upon the materials and equipment described in the bidding documents.

MANUFACTURER'S NUMBERS OR TRADE NAMES:

5.2 Where a manufacturer's product is named or specified, it is understood that "or equal" shall apply, whether stated or not. Such name and number is meant to establish the standard of quality desired and does not restrict bidders to the specific brand, make, manufacturer, or specification named; and are set forth and convey to prospective bidders the general style, type, character, and quality of product desired; and that equal products will be acceptable. The University of Louisiana at Monroe shall be sole judge as to whether or not the material is equal to that specified.

ARTICLE 6

REJECTION OF BIDS

6.1 The Bidder acknowledges the right of the University to reject any or all bids and to waive any informality or irregularity in any bid received. In addition, the bidder recognizes the right of the University to reject a bid if the Bidder failed to furnish any required bid security, or to submit the data required by the bidding documents, or if the bid is in any way incomplete or irregular.

ARTICLE 7

AWARDS

7.1 Awards may not be made to any person, firm, or company in default of any contract. Said person, firm, or company shall be considered non-responsible bidders and may be reinstated and awards made to them only after they have given evidence of good faith and have satisfactorily completed their obligations.

PUBLICIZING AWARDS

7.2 Written notice of award shall be sent to the successful bidder. In procurement over $25,000, each unsuccessful bidder shall be notified of the award provided that he/she submitted with his/her bid a self-addressed envelope requesting this information. Notice of award will be made a part of the procurement file.

RIGHT TO PROTEST

7.3 Any person who is aggrieved in connection with the solicitation or award of a contract shall protest to the Director Purchasing. Protests with respect to a solicitation shall be submitted in writing at least two days prior to the opening of bids on all matters except housing of state agencies, their personnel, operations, equipment, or activities pursuant to R.S. 39:1643 for which such protest shall be submitted at least ten days prior to the opening of bids. Protests with respect to the award of a contract shall be submitted in writing within fourteen days after contract award.

AUTHORITY TO RESOLVE PROTESTS:

7.4 Prior to the commencement of an action in court concerning any controversy, the Director of Purchasing or his/her designee shall have the authority, to resolve the protest of any aggrieved person concerning the solicitation or award of a contract. This authority shall be exercised in accordance with regulations.

ARTICLE 8

PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

8.1 Performance and Payment Bonds shall be required on Public Works projects with an expected cost greater than $50,000. Performance and Payment Bonds, when required, shall be provided in an amount of 50% of the contract price. Performance and Payments Bonds shall be required by the successful bidder. Any surety bond required shall be written by a surety or insurance company currently on the U. S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register. For any Public Works projects, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U. S. Department of the Treasury Financial Management Service list. The surety bond written for a Public Works project shall be written by a surety or insurance company that is currently licensed to do business in the State of Louisiana.

8.2 The bidder shall require the attorney in fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his power of attorney indicating the monetary limit of such power.

RECORDING OF BOND AND CONTRACT

8.3 The Contractor shall record the Contract and Performance Bond with the Clerk of Court in Ouachita Parish and provide the Purchasing Department with proof of filing.

ARTICLE 9

PAYMENT

9.1 Payment will be made by The University of Louisiana Monroe.

9.2 The contractor will be required to provide a Clear Lien Certificate from the Ouachita Parish Clerk of Court, a process that may take an average 45 days for final payment.

ARTICLE 10

TAXES

10.1 Applicable taxes are to be included in lump sum bid.

ARTICLE 11

GUARANTEE

11.1 The materials and labor under this contract, as described in the specifications, shall be guaranteed by the Contractor for a period of one year from date of its acceptance against defects of materials or workmanship. Any defects which develop during this period shall be properly repaired or replaced without cost to the Owner as soon as possible.

ACCEPTANCE

11.2 The guarantee covering materials and labor under this contract will begin the date a Notice of Acceptance is issued to the Contractor by The University of Louisiana at Monroe.

ARTICLE 12

CHANGES IN THE WORK

12.1 A Change Order is a written order to the Contractor signed by the Owner, issued after execution of the Contract, authorizing a Change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the adjustment in the Contract Sum or the Contract Time. Any Change Order not signed by the Owner will be considered null and void.

12.2 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and the Contract Time being adjusted accordingly. All such changes in the Work shall be authorized by Change Order, and shall be performed under the applicable conditions of the Contract Documents.

12.3 When the Change Order is negotiated it shall be fully documented and itemized as to cost, including material quantities, material costs, insurance, employee benefits, other related costs, profit and overhead, and will be process in accordance with LA R.S. 38:2222.

SUPPLEMENTARY CONDITIONS

ARTICLE 1

CONTRACTOR

CONTRACTOR'S LICENSE

1.1 On any bid amounting to $50,000 or more, the Contractor shall certify that s/he is licensed under Act 377 of the 1976 Louisiana Regular Legislative Session and show the contractor license number and the bid number on the front portion of the envelope; except projects financed, partially or wholly, with Federal Funds, provided that any successful Bidder before signing Contract thereon, files application for a license and pays the fee as provided in this Act and complies with all terms and provisions of this Act and with the rules and regulations of the Licensing Board.

1.2 A subcontractor who wishes to bid or perform commercial work where the total cost of the project including labor and materials for the following must be licensed:

- $50,000 or more for major and specialty classifications
- $10,000 or more for electrical, mechanical, and plumbing
- $1 or more for hazardous

CONTRACTOR'S AFFIDAVIT

1.3 In accordance with the Louisiana R.S. 38:2190 -2220, if the Contract is awarded to the successful Bidder, the Bidder shall, at the time of the signing of the Contract, execute the Contractor's Affidavit included in the Contract Documents.

INTEREST

1.4 There shall be no payment of interest on money owed.

ARTICLE 2

PAYMENTS AND COMPLETION

SUBSTANTIAL COMPLETION

2.1 The Owner will issue a NOTICE OF ACCEPTANCE for the Contractor to record with the Clerk of Court in Ouachita Parish.

FINAL COMPLETION AND FINAL PAYMENT

2.2 The Contract is to provide that the contractor is not to be paid more than ninety percent (90%) of the amount of the contract upon completion of the work. The Contractor shall record the NOTICE OF ACCEPTANCE with the Ouachita Parish Clerk of Court and shall furnish a CLEAR LIEN CERTIFICATE from the Clerk of Court within forty-five days after recordation of NOTICE OF ACCEPTANCE. At that time, the remaining ten percent (10%) will be paid.

LIQUIDATED DAMAGES

2.3 The Owner will suffer financial loss if the Project is not substantially complete on the date set forth in the CONTRACT DOCUMENTS. The Contractor (and/or Surety) shall be liable for and shall pay to the Owner Liquidated Damages for each calendar day of delay until the work is Substantially Complete.

The Completion Time stated in Consecutive Calendar Days and the Liquidated Damages stated in Dollars per Day are listed in the PROPOSAL FORM

ARTICLE 3

INSURANCE

INSURANCE REQUIREMENTS FOR CONTRACTORS

The Contractor shall purchase and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, its agents, representatives, employees or subcontractors.

A. MINIMUM SCOPE AND LIMITS OF INSURANCE

1. **Workers Compensation**

Workers Compensation insurance shall be in compliance with the Workers Compensation law of the State of the Contractor's headquarters. Employers Liability is included with a minimum limit of $1,000,000 per accident/per disease/per employee. If work is to be performed over water and involves maritime exposure, applicable LHWCA, Jones Act, or other maritime law coverage shall be included. A.M. Best's insurance company rating requirement may be waived for workers compensation coverage only. The insurance shall cover any claim(s) for incident(s) made during the policy period.

2. **Commercial General Liability**

Commercial General Liability insurance, including Personal and Advertising Injury Liability and Products and Completed Operations, shall have a minimum limit per occurrence of $1,000,000 and a minimum general annual aggregate of $2,000,000. The Insurance Services Office (ISO) Commercial General Liability occurrence coverage form CG 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. Claims-made form is unacceptable.

3. **Automobile Liability**

Automobile Liability Insurance shall have a minimum combined single limit per accident of $1,000,000. ISO form number CA 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. This insurance shall include third-party bodily injury and property damage liability for owned, hired and non-owned automobiles.

4. **Professional Liability (Errors and Omissions)**

Professional Liability (Error & Omissions) insurance, which covers the professional errors, acts, or omissions of the Contractor, shall have a minimum limit of $1,000,000 per claim. Claims-made coverage is acceptable. The date of the inception of the policy must be no later than the first date of the anticipated work under this contract. It shall provide coverage for the duration of this contract and shall have an expiration date no earlier than 30 days after the anticipated completion of the contract. The policy shall provide an extended reporting period of at least 24 months, with full reinstatement of limits, from the expiration date of the policy, if policy is not renewed.

5. **Cyber Liability**

Cyber liability insurance, including first-party costs, due to an electronic breach that compromises the State's confidential data shall have a minimum limit per occurrence of $1,000,000. Claims-made coverage is acceptable. The date of the inception on the policy must be no later than the first date of the anticipated work under this contract. It shall provide coverage for the duration on this contract and shall have an expiration date no earlier than 30 days after the anticipated completion of the contract. The policy shall provide an extended reporting period of not less than 24 months from the expiration date of the policy, if the policy is not renewed. The policy shall not be cancelled for any reason, except non-payment of premium.

B. DEDUCTIBLES AND SELF-INSURED RETENTIONS

Any deductibles or self-insured retentions must be declared to and accepted by the Agency. The Contractor shall be responsible for all deductibles and self-insured retentions.

C. OTHER INSURANCE PROVISIONS

The policies are to contain, or be endorsed to contain, the following provisions:

1. Commercial General Liability and Automobile Liability Coverages

   a. The Agency, its officers, agents, employees and volunteers shall be named as an additional insured as regards negligence by the contractor. ISO Forms CG 20 10 (for ongoing work) AND CG 20 37 (for completed work) (current forms approved for use in Louisiana), or equivalents, are to be used when applicable. The coverage shall contain no special limitations on the scope of protection afforded to the Agency.

   b. The Contractor's insurance shall be primary as respects the Agency, its officers, agents, employees and volunteers for any and all losses that occur under the contract. Any insurance or self-insurance maintained by the Agency shall be excess and non-contributory of the Contractor's insurance.

2. Workers Compensation and Employers Liability Coverage

   To the fullest extent allowed by law, the insurer shall agree to waive all rights of subrogation against the Agency, its officers, agents, employees and volunteers for losses arising from work performed by the Contractor for the Agency.

3. All Coverages

   a. All policies must be endorsed to require 30 days written notice of cancellation to the Agency. Ten-day written notice of cancellation is acceptable for non-payment of premium. Notifications shall comply with the standard cancellation provisions in the Contractor's policy. In addition, Contractor is required to notify Agency of policy cancellations or reductions in limits.

   b. The acceptance of the completed work, payment, failure of the Agency to require proof of compliance, or Agency's acceptance of a non-compliant certificate of insurance shall not release the Contractor from the obligations of the insurance requirements or indemnification agreement.

   c. The insurance companies issuing the policies shall have no recourse against the Agency for payment of premiums or for assessments under any form of the policies.

   d. Any failure of the Contractor to comply with reporting provisions of the policy shall not affect coverage provided to the Agency, its officers, agents, employees and volunteers.

D. ACCEPTABILITY OF INSURERS

1. All required insurance shall be provided by a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located. Insurance shall be placed with insurers with an A.M. Best's rating of **A- :VI or higher**. This rating requirement may be waived for workers compensation coverage only.

2. If at any time an insurer issuing any such policy does not meet the minimum A.M. Best rating, the Contractor shall obtain a policy with an insurer that meets the A.M. Best rating and shall submit another Certificate of Insurance within 30 days.

E. VERIFICATION OF COVERAGE

1. Contractor shall furnish the Agency with Certificates of Insurance reflecting proof of required coverage. The Certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The Certificates are to be received and approved by the Agency before work commences and upon any contract renewal or insurance policy renewal thereafter.

2. The Certificate Holder Shall be listed as follows: University of Louisiana at Monroe
   Agency Name, Its Officers, Agents, Employees and Volunteers
   Address, City, State, Zip
   Project or Contract #:

3. In addition to the Certificates, Contractor shall submit the declarations page and the cancellation provision for each insurance policy. The Agency reserves the right to request complete certified copies of all required insurance policies at any time.

4. Upon failure of the Contractor to furnish, deliver and maintain required insurance, this contract, at the election of the Agency, may be suspended, discontinued or terminated. Failure of the Contractor to purchase and/or maintain any required insurance shall not relieve the Contractor from any liability or indemnification under the contract.

F. SUBCONTRACTORS

Contractor shall include all subcontractors as insureds under its policies OR shall be responsible for verifying and maintaining the Certificates provided by each subcontractor. Subcontractors shall be subject to all of the requirements stated herein. The Agency reserves the right to request copies of subcontractor's Certificates at any time. Failure of contractor to comply with this clause does not waive the contractor responsibility to indemnify or defend Agency due to subcontractor's failure to acquire proper insurance.

G. WORKERS COMPENSATION INDEMNITY

In the event Contractor is not required to provide or elects not to provide workers compensation coverage, the parties hereby agree that Contractor, its owners, agents and employees will have no cause of action against, and will not assert a claim against, the State of Louisiana, its departments, agencies, agents and employees as an employer, whether pursuant to the Louisiana Workers Compensation Act or otherwise, under any circumstance. The parties also hereby agree that the State of Louisiana, its departments, agencies, agents and employees shall in no circumstance be, or considered as, the employer or statutory employer of Contractor, its owners, agents and employees. The parties further agree that Contractor is a wholly independent contractor and is exclusively responsible for its employees, owners, and agents. Contractor hereby agrees to protect, defend, indemnify and hold the State of Louisiana, its departments, agencies, agents and employees harmless from any such assertion or claim that may arise from the performance of this contract.

H. INDEMNIFICATION/HOLD HARMLESS AGREEMENT

1. Contractor/Subcontractor/Other responsible party agrees to protect, defend, indemnify, save, and hold harmless, the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants, employees, and volunteers, from and against any and all claims, damages, expenses, and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur, or in any way grow out of, any act or omission of Contractor, its agents, servants, and employees, or any and all costs, expenses and/or attorney fees incurred by Contractor as a result of any claims, demands, suits or causes of action, except those claims, demands, suits, or causes of action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its officers, agents, servants, employees and volunteers.

2. Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands, suits, or causes of action at its sole expense and agrees to bear all other costs and expenses related thereto, even if the claims, demands, suits, or causes of action are groundless, false or fraudulent. The State of Louisiana may, but is not required to, consult with the Contractor in the defense of claims, but this shall not affect the Contractor's responsibility for the handling of and expenses for all claims.

ARTICLE 4

QUALITY

STANDARD OF QUALITY

1.1 Where catalog numbers and/or manufacturer's names are referred to in the specifications, they are used for the purpose of conveying to the prospective bidders the type and design of equipment, or supplies desired; but it shall be understood that bidders may submit on other makes in lieu of that mentioned, providing such other item is similar in design and equal in quality. It is not expected that the items of all manufacturers shall conform exactly to every detail and dimension mentioned in the specifications; but the essential features of the items mentioned shall be provided in the items to be furnished.

University of Louisiana at Monroe (ULM)

ULM Bid 50006-072 Hemphill Hall Chiller Replacement

1. PROJECT SUMMARY

The University of Louisiana at Monroe (ULM) is requesting bids from qualified, Louisiana licensed Municipal and Public Works Construction contractors. The scope of work for this project consists of replacement of Hemphill Hall Chiller and other work, as further described in the bid documents. The contractor shall fully complete all work during 360 consecutive calendar days.

2. PROJECT LOCATION

The project location is on the main campus of the University of Louisiana at Monroe, Monroe, Louisiana, 71209. Refer to the attached plans and drawings for the exact location.

3. BID DELIVERY INSTRUCTIONS

ULM requires that one copy of the entire bid be submitted. The bid shall contain electronic signatures or scans of original signatures of those company officials or agents who are duly authorized to sign on behalf of the organization. An electronic signature as provided by LAC 4:I.701 et seq. is considered an original signature. A certified copy of a board resolution granting such authority should be submitted if the bidder is a corporation. All other forms, attestations, acknowledgements, etc., required per the bid documents and all addenda must be included with the submission.

Sealed bids be mailed or hand delivered to the Purchasing Department of The University of Louisiana Monroe, Coenen Hall 140, 4014 LaSalle St., Monroe, LA 71209, until the Due Date and time. Bids must be sealed in an envelope with the BID NUMBER, BID OPENING DATE, COMPANY NAME, and CONTRACTOR'S LICENSE clearly displayed on the outside of the envelope.

4. SCOPE OF WORK TO BE COMPLETED BY CONTRACTOR

Contractor shall refer to full set of Contract Documents for full Scope of Work for the project.

5. RECOMMENDED PRE-BID SITE VISIT

Site visits are recommended for all potential Bidders. Visits may be scheduled by contacting Michael Davis, Director of Facilities & EHS, at 318.342.5171, or via email to mdavis@ulm.edu.

Each Bidder is solely responsible for a prudent and complete personal inspection, examination and assessment of the facilities and any other existing condition, factor, or item that may affect or impact the performance of service described and required by the Contractual Requirements.

Bidders are strongly encouraged to advise the University, prior to the scheduled tour of the facilities, of any special accommodations for disabled personnel who will be attending the tour(s) so that these accommodations can be made.

6. SUBMISSION FOR APPROVAL OF "OR EQUAL" PRODUCTS

Procurement Substitution Request must be made in writing in compliance with the following requirements:

a. Requests for substitution of materials and equipment will be considered if received no later than 7 business days prior to date of bid opening.
b. Submittal Format: Submit 1 copy of each written Procurement Substitution Request, using CSI Substitution Request Form 1.5C.
c. Procurement Substitution Request may be submitted via email in PDF format or mailed. Faxed requests

will not be accepted.

i. Contact: John Wilson
ii. Email:
iii. Mailing Address: 208 Milan Street, Shreveport La 71101

7. QUESTIONS / REQUESTS FOR CLARIFICATION

All questions and requests for clarification shall be submitted in writing to the ULM purchasing office at least seven (7) days prior to the bid date. If necessary, ULM will issue an addendum to provide answers and clarifications.

8. AREA OF WORK – Safety and Protection

The contractor shall post warning signs and barriers as necessary to ensure that students, faculty, staff, and the general public avoid the work area. The contractor may store materials on site provided the materials are stored in a location and manner that does not interfere with the University and does not damage existing facilities (grounds, grass, sidewalks, parking lots, etc.)

The contractor should coordinate with University personnel to approve the laydown / material storage areas at the pre-construction meeting and before any material are delivered.

This building will remain open and the business will maintain normal operations. The contractor needs to insure that the safety of the students, faculty, staff, and general public remain the first priority during this job. The contractor shall in no way impede the day-to-day operations of the business.

9. CONSTRUCTION SCHEDULE / OUTAGES

The project should be completed within 21 days of a notice to proceed. We expect the lights directly over the hard wood floor to be completed first and should take no longer than 5 days.

The University should be given a notice of 24 hours before any outages are scheduled should there need to be any.

10. LIQUIDATED DAMAGES

The University will assess liquidated damages to the contractor for failure to comply with the schedule of the work. Liquidated damages shall be assessed at the rate of $500.00 per day for each additional day required to fully complete the scope of work. The contractor shall fully complete all work 360 consecutive calendar days. Work can begin on TBD, and must be completed, including all Punch List items, by TBD, in accordance with the project specifications.

11. DAMAGES TO FACILITIES

Contractor shall be responsible for all damages to the existing site, facilities, furniture, and equipment that are caused by this project. The contractor shall carefully document existing site conditions and existing damages prior to commencing work. The contractor shall repair all damage to its original, undamaged condition prior to completing this project.

12. COMPLIANCE AND SAFETY REQUIREMENTS

Contractor shall be required to adhere to all University safety and health policies. Contractor shall fully comply with all applicable laws, rules, regulations, permits, etc. This includes but is not limited to the following: the contractor must use an OSHA approved lockout / tag out program that meets or exceeds the University's policy, the contractor shall properly label all chemical containers used during the project, the contractor shall have a

material safety data sheet (MSDS) for each product used during the project, etc. All employees shall wear fall protection equipment as required when working at elevated levels. All employees will not be allowed to use tobacco products on the project site. Contractor, subcontractors, material suppliers and all employees must be properly trained and fully comply with occupational safety and health regulations. Any accidents, incidents, near misses, etc. will be reported to the University project coordinator immediately and the University may investigate these events. The University reserves the right to require the contractor to remove any employee from the project if the employee is observed violating safety rules, regulations, policies, etc.

13. CYBERSECURITY TRAINING

    a. In accordance with La. R.S. 42:1267(B)(3) and the State of Louisiana's Information Security Policy, if the Contractor, any of its employees, agents, or subcontractors will have access to State government information technology assets, the Contractor's employees, agents, or subcontractors with such access must complete cybersecurity training annually, and the Contractor must present evidence of such compliance annually and upon request. The Contractor may use the cybersecurity training course offered by the Louisiana Department of State Civil Service without additional cost or may use any alternate course approved in writing by the Office of Technology Services.

    b. For purposes of this Section, "access to State government information technology assets" means the possession of credentials, equipment, or authorization to access the internal workings of State information technology systems or networks. Examples would include but not be limited to State-issued laptops, VPN credentials to credentials to access the State network, badging to access the State's telecommunications closets or systems, or permissions to maintain or modify IT systems used by the State. Final determination of scope inclusions or exclusions relative to access to State government information technology assets will be made by the Office of Technology Services.

14. PROFESSIONAL CONDUCT

    The contractor, sub-contractors, material suppliers, and all workers associated with the project shall conduct themselves in a professional manner at all times. All employees shall wear identification that clearly identifies them as a contract employee. This could be a uniform shirt or name badge. Shirts shall be neatly tucked into trousers. Contractors shall not be allowed to wear sleeveless shirts, tank tops, etc. No profanity will be allowed for any reason. The University reserves the right to require the contractor to remove any employee from the job immediately for failure to comply with these requirements and / or for failure to comply with University policies and procedures, and all other applicable laws, rules, and requirements.

15. USE OF UNIVERSITY FACILITIES

    The contractor, sub-contractors, material suppliers, and all workers associated with the project shall not use University facilities such as restrooms, break rooms, vending machines, etc. The contractor shall supply a portable restroom for their employees to use.

16. USE OF TOBACCO PRODUCTS

    Tobacco use will only be allowed in personal vehicles. See ULM's tobacco use policy for detailed information at http://www.ulm.edu/tobaccouse/

17. DISPOSAL

    Contractor shall dispose of all construction debris, trash, and other materials in compliance with all applicable laws, rules, regulations, permits, etc.

Project Manual & Drawings to Follow

JOHN J. GUTH ASSOCIATES, INC.

208 Milam Street • Shreveport, Louisiana 71101
Phone: (318) 221.8638 • Fax: (318) 221.8717

PROJECT INFORMATION

ULM - HEMPHILL HALL
CHILLER REPLACEMENT
UNIVERSITY OF LOUISIANA - MONROE
MONROE, LOUISIANA

BID NO. 50006-072

ISSUE DATE: April 17, 2025

Guth PN 22-7321

ULM – HEMPHILL HALL
CHILLER REPLACEMENT
UNIVERSITY OF LOUISIANA - MONROE
MONROE, LOUISIANA

BID NUMBER 50006-072

GUTH PN 22-7321

TABLE OF CONTENTS

ULM – HEMPHILL HALL
CHILLER REPLACEMENT
UNIVERSITY OF LOUISIANA - MONROE
MONROE, LOUISIANA

BID NUMBER 50006-072

GUTH PN 22-7321

TABLE OF CONTENTS

ULM – HEMPHILL HALL
CHILLER REPLACEMENT
UNIVERSITY OF LOUISIANA - MONROE
MONROE, LOUISIANA

BID NUMBER 50006-072

GUTH PN 22-7321

SEALS

Specification Divisions/Sections prepared under my responsible supervision:

DIVISION 00 PROCUREMENT AND CONTRACTING REQUIREMENTS
DIVISION 01 GENERAL REQUIREMENTS
DIVISION 02 SITE CONSTRUCTION
DIVISION 23 MECHANICAL

JOHN C. WILSON, P.E., PRESIDENT
MECHANICAL ENGINEER – LA LICENSE 19008

ADVERTISEMENT FOR BIDS

Sealed bids will be received by the University of Louisiana Monroe, Purchasing Office, Coenen Hall Room 140, 4014 LaSalle Street, Monroe, LA 71209. The deadline for receipt of bids is 2:00 PM on **Thursday, June 26, 2025** at which time bids will be opened and read aloud in Coenen Hall Room 140, 4014 LaSalle St., Monroe, LA 71209.

FOR: **ULM Hemphill Hall**
Chiller Replacement
University od Louisiana - Monroe
Monroe, Louisiana

Bid Number: 50006-072

Complete Bidding Documents for this project are available in electronic form. They may be obtained without charge and without deposit from **John J. Guth Associates, Inc.** Printed copies are not available from the Designer but arrangements can be made to obtain them through most reprographic firms. Plan holders are responsible for their own reproduction costs.

Questions about this procedure shall be directed to the Designer at:

John J. Guth Associates, Inc.
208 Milam Street
Shreveport, LA 71101
Telephone: 318-221-8638
E-mail: cbullard@guthassoc.com or dsisco@guthassoc.com

All bids shall be accompanied by bid security in an amount of five percent (5.0%) of the sum of the base bid and all alternates. The form of this security shall be as stated in the Instructions to Bidders included in the Bid Documents for this project.

The successful Bidder shall be required to furnish a Performance and Payment Bond written as described in the Instructions to Bidders included in the Bid Documents for this project.

A PRE-BID CONFERENCE WILL BE HELD
at 10:00 AM on Wednesday, June 11, 2025 at Coenen Hall Room 106.

Bids shall be accepted from Contractors who are licensed under LA. R.S. 37:2150-2192 for the classification of **Mechanical Work**. Bidder is required to comply with provisions and requirements of LA R.S. 38:2212(B)(5). No bid may be withdrawn for a period of forty-five (45) days after receipt of bids, except under the provisions of LA. R.S. 38:2214.

The Owner reserves the right to reject any and all bids for just cause. In accordance with La. R.S. 38:2212(B)(1), the provisions and requirements of this Section; and those stated in the bidding documents shall not be waived by any entity.

When this project is financed either partially or entirely with State Bonds or financed in whole or in part by federal or other funds which are not readily available at the time bids are received, the award of this Contract is contingent upon the granting of lines of credit, or the sale of bonds by the Bond Commission or the availability of federal or other funds. The State shall incur no obligation to the Contractor until the Contract Between Owner and Contractor is fully executed.

ANY PERSON REQUIRING SPECIAL ACCOMMODATIONS SHALL NOTIFY UNIVERSITY OF LOUISIANA MONROE OF THE TYPE(S) OF ACCOMMODATION REQUIRED NOT LESS THEN SEVEN (7) DAYS BEFORE THE BID OPENING.

INSTRUCTIONS TO BIDDERS

COMPLETION TIME:

The Bidder shall agree to fully complete the contract within (360) consecutive calendar days, subject to such extensions as may be granted under Paragraph 8.3, in the General Conditions and the Supplementary Conditions, and acknowledges that this construction time will start on or before the date specified in the written "Notice to Proceed" from the Owner.

LIQUIDATED DAMAGES:

The Bidder shall agree to pay as Liquidated Damages the amount of (Five Hundred) Dollars ($500.00) for each consecutive calendar day for which the work is not complete, beginning with the first day beyond the contract completion date stated on the "Notice to Proceed" or as amended by change order.

ARTICLE 1

DEFINITIONS

1.1 The Bid Documents include the following:

Advertisement for Bids
Instructions to Bidders
Bid Form
Bid Bond
General Conditions of the Contract for Construction,
AIA Document A201, 2017 Edition
Supplementary Conditions
Contract Between Owner and Contractor and Performance and Payment Bond
Affidavit
User Agency Documents (if applicable)
Change Order Form
Partial Occupancy Form
Recommendation of Acceptance
Asbestos Abatement (if applicable)
Other Documents (if applicable)
Specifications & Drawings
Addenda issued during the bid period and acknowledged in the Bid Form

1.2 All definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201 and the Supplementary Conditions are applicable to the Bid Documents.

1.3 Addenda are written and/or graphic instruments issued by the Architect prior to the opening of bids, which modify or interpret the Bid Documents by additions, deletions, clarifications, corrections and prior approvals.

1.4 A bid is a complete and properly signed proposal to do the work or designated portion thereof for the sums stipulated therein supported by data called for by the Bid Documents.

1.5 Base bid is the sum stated in the bid for which the Bidder offers to perform the work described as the base, to which work may be added, or deleted for sums stated in alternate bids.

1.6 An alternate bid (or alternate) is an amount stated in the bid to be added to the amount of the base bid if the corresponding change in project scope or materials or methods of construction described in the Bid Documents is accepted.

1.7 A Bidder is one who submits a bid for a prime Contract with the Owner for the work described in the Bid Documents.

1.8 A Sub-bidder is one who submits a bid to a Bidder for materials and/or labor for a portion of the work.

1.9 Where the word "Architect" is used in any of the documents, it shall refer to the Prime Designer of the project, regardless of discipline.

ARTICLE 2

PRE-BID CONFERENCE

2.1 A Pre-Bid Conference shall be held at least 10 days before the date for receipt for bids. The Architect shall coordinate the setting of the date, time and place for the Pre-Bid Conference with the User Agency and shall notify in writing the Owner and all who have received sets of the Bid Documents to

attend. The purpose of the Pre-Bid Conference is to familiarize Bidders with the requirements of the Project and the intent of the Bid Documents, and to receive comments and information from interested Bidders. If the Pre-Bid Conference is stated in the Advertisement for Bids to be a Mandatory Pre-Bid Conference, bids shall be accepted only from those bidders who attend the Pre-Bid Conference. Contractors who are not in attendance for the **entire** Pre-Bid Conference will be considered to have not attended.

2.2 Any revision of the Bid Documents made as a result of the Pre-Bid Conference shall not be valid unless included in an addendum.

ARTICLE 3

BIDDER'S REPRESENTATION

3.1 Each Bidder by making his bid represents that:

3.1.1 He has read and understands the Bid Documents and his bid is made in accordance therewith.

3.1.2 He has visited the site and has familiarized himself with the local conditions under which the work is to be performed.

3.1.3 His bid is based solely upon the materials, systems and equipment described in the Bid Documents as advertised and as modified by addenda.

3.1.4 His bid is not based on any verbal instructions contrary to the Bid Documents and addenda.

3.1.5 He is familiar with Code of Governmental Ethics requirement that prohibits public servants and/or their immediate family members from bidding on or entering into contracts; he is aware that the Designer and its principal owners are considered Public Servants under the Code of Governmental Ethics for the limited purposes and scope of the Design Contract with the State on this Project (see Ethics Board Advisory Opinion, No. 2009-378 and 2010-128); and neither he nor any principal of the Bidder with a controlling interest therein has an immediate family relationship with the Designer or any principal within the Designer's firm (see La. R.S. 42:1113). Any Bidder submitting a bid in violation of this clause shall be disqualified and any contract entered into in violation of this clause shall be null and void.

3.2 The Bidder must be fully qualified under any State or local licensing law for Contractors in effect at the time and at the location of the work before submitting his bid. In the State of Louisiana, Revised Statutes 37:2150, et seq. will be considered, if applicable.

The Contractor shall be responsible for determining that all of his Sub-bidders or prospective Subcontractors are duly licensed in accordance with law.

ARTICLE 4

BID DOCUMENTS

4.1 Copies

4.1.1 Bid Documents may be obtained from the Architect for a deposit as stated in the Advertisement for Bids. The deposit will be refunded as stated in the Advertisement for Bids. No deposits will be refunded on Bid Documents returned later than ten days after receipt of bids.

4.1.1.2 As an alternative method of distribution, the Designer may provide the Bid Documents in electronic format. They may be obtained without charge and without deposit as stated in the Advertisement for Bids.

4.1.1.2.1 If electronic distribution is available, printed copies will not be available from the Designer, but arrangements can be made to obtain them through most reprographic firms and/or plan rooms.

4.1.1.2.2 If electronic distribution is available, the reproduction cost on the first paper plan set acquired by bona fide prime bidders will be fully refunded by the Designer upon delivery of the documents to the Designer in good condition no later than ten days after receipt of bids.

4.1.1.2.3 If electronic distribution is available, all other plan holders are responsible for their own reproduction costs.

4.1.2 Complete sets of Bid Documents shall be used in preparing bids; neither the Owner nor the Architect assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents.

4.1.3 The Owner or Architect in making copies of the Bid Documents available on the above terms, do so only for the purpose of obtaining bids on the work and do not confer a license or grant for any other use.

4.2 Interpretation or Correction of Bid Documents

4.2.1 Bidders shall promptly notify the Architect of any ambiguity, inconsistency or error which they may discover upon examination of the Bid Documents or of the site and local conditions.

4.2.2 Bidders requiring clarification or interpretation of the Bid Documents shall make a written request to the Architect, to reach him at least seven days prior to the date for receipt of bids.

4.2.3 Any interpretation, correction or change of the Bid Documents will be made by addendum. Interpretations, corrections or changes of the Bid Documents made in any other manner will not be binding and Bidders shall not rely upon such interpretations, corrections and changes.

4.3 Substitutions

4.3.1 The materials, products and equipment described in the Bid Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitutions shall be allowed after bids are received.

4.3.2 No substitution will be considered unless written request for approval has been submitted by the Proposer and has been received by the Architect at least fourteen (14) working days prior to the opening of bids. (La. R.S. 38:2295(C)) Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including model numbers, drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require shall be included. It shall be the responsibility of the proposer to include in his proposal all changes required of the Bid Documents if the proposed product is used. Prior approval, if given, is contingent upon supplier being responsible for any costs which may be necessary to modify the space or facilities needed to accommodate the materials and equipment approved.

4.3.3 If the Architect approves any proposed substitution, such approval shall be set forth in an addendum. Bidders shall not rely upon approvals made in any other manner.

4.4 Addenda

4.4.1 Addenda will be transmitted to all who are known by the Architect to have received a complete set of Bid Documents.

4.4.2 Copies of addenda will be made available for inspection wherever Bid Documents are on file for that purpose.

4.4.3 Except as described herein, addenda shall not be issued within a period of seventy-two (72) hours prior to the advertised time for the opening of bids, excluding Saturdays, Sundays, and any other legal holidays. If the necessity arises of issuing an addendum modifying plans and specifications within the seventy-two (72) hour period prior to the advertised time for the opening of bids, then the opening of bids shall be extended at least seven but no more than twenty-one (21) working days, without the requirement of re-advertising. University of Louisiana – Monroe shall be consulted prior to issuance of such an addendum and shall approve such issuance. The revised time and date for the opening of bids shall be stated in the addendum.

4.4.4 Each Bidder shall ascertain from the Architect prior to submitting his bid that he has received all addenda issued, and he shall acknowledge their receipt on the Bid Form.

4.4.5 The Owner shall have the right to extend the bid date by up to (30) thirty days without the requirement of re-advertising. Any such extension shall be made by addendum issued by the Architect.

ARTICLE 5

BID PROCEDURE

5.1 Form and Style of Bids

5.1.1 Bids shall be submitted on the Louisiana Uniform Public Work Bid Form provided by the Architect for this project.

5.1.2 The Bidder shall ensure that all applicable blanks on the bid form are completely and accurately filled in.

5.1.3 Bid sums shall be expressed in both words and figures, and in case of discrepancy between the two, the written words shall govern.

5.1.4 Any interlineation, alteration or erasure must be initialed by the signer of the bid or his authorized representative.

5.1.5 Bidders are cautioned to complete all alternates should such be required in the Bid Form. Failure to submit alternate prices will render the bid non responsive and shall cause its rejection.

5.1.6 Bidders are cautioned to complete all unit prices should such be required in the Bid Form. Unit prices represent a price proposal to do a specified quantity and quality of work. Unit prices are incorporated into the base bid or alternates, as indicated on the Unit Price Form, but are not the sole components thereof.

5.1.7 Bidder shall make no additional stipulations on the Bid Form nor qualify his bid in any other manner.

5.1.8 Written evidence of the authority of the person signing the bid for the public work shall be submitted in accordance with La. R.S. 38:2212 (B)(5).

5.1.9 On any bid in excess of fifty thousand dollars ($50,000.00), the Contractor shall certify that he is licensed under La. R.S. 37: 2150-2173 and show his license number on the bid above his signature or his duly authorized representative.

5.2 Bid Security

5.2.1 No bid shall be considered or accepted unless the bid is accompanied by bid security in an amount of five percent (5.0%) of the base bid and all alternates.

The bid security shall be in the form of a certified check or cashier's check drawn on a bank insured by the Federal Deposit Insurance Corporation, or a Bid Bond written by a surety company licensed to do business in Louisiana and signed by the surety's agent or attorney-in-fact. The Bid Bond shall be written on the Bid Bond Form, and the surety for the bond must meet the qualifications stated thereon. The Bid Bond shall include the legal name of the bidder be in favor of the University of Louisiana – Monroe, and shall be accompanied by appropriate power of attorney. The Bid Bond must be signed by both the bidder/principal and the surety in the space provided on the Bid Bond Form. Failure by the bidder/principal or the surety to sign the bid bond shall result in the rejection of the bid.

Bid security furnished by the Contractor shall guarantee that the Contractor will, if awarded the work according to the terms of his proposal, enter into the Contract and furnish Performance and Payment Bonds as required by these Bid Documents, within fifteen (15) days after written notice that the instrument is ready for his signature.

Should the Bidder refuse to enter into such Contract or fail to furnish such bonds, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as penalty.

5.2.2 The Owner will have the right to retain the bid security of Bidders until either (a) the Contract has been executed and bonds have been furnished, or (b) the specified time has elapsed so that bids may be withdrawn, or (c) all bids have been rejected.

5.3 Submission of Bids

5.3.1 The Bid shall be sealed in an opaque envelope. The bid envelope shall be identified on the outside with the name of the project, and the name, address, and license number of the Bidder.
The envelope shall not contain multiple bid forms, and will be received until the time specified and at the place specified in the Advertisement for Bids. It shall be the specific responsibility of the Bidder to deliver his sealed bid to University of Louisiana – Monroe at the appointed place and prior to the announced time for the opening of bids. Late delivery of a bid for any

reason, including late delivery by United States Mail, or express delivery, shall disqualify the bid.

If the bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "Bid Enclosed" on the face thereof. Such bids shall be sent by Registered or Certified Mail, Return Receipt Requested, addressed to:

University of Louisiana – Monroe
Purchasing Department,
700 University Ave.
Coenen Hall 140
Monroe, LA 71209
Bids sent by express delivery shall be delivered to:
University of Louisiana – Monroe
Purchasing Department,
700 University Ave
Coenen Hall 140
Monroe, LA 71209.

5.3.2 Bids shall be deposited at the designated location prior to the time on the date for receipt of bids indicated in the Advertisement for Bids, or any extension thereof made by addendum. Bids received after the time and date for receipt of bids will be returned unopened.

5.3.3 Bidder shall assume full responsibility for timely delivery at location designated for receipt of bids.

5.3.4 Oral, telephonic or telegraphic bids are invalid and shall not receive consideration. Owner shall not consider notations written on outside of bid envelope which have the effect of amending the bid. Written modifications enclosed in the bid envelope, and signed or initialed by the Contractor or his representative, shall be accepted.

5.4 Modification or Withdrawal of Bid

5.4.1 A bid may not be modified, withdrawn or canceled by the Bidder during the time stipulated in the Advertisement for Bids, for the period following the time and bid date designated for the receipt of bids, and Bidder so agrees in submitting his bid, except in accordance with R.S. 38:2214 which states, in part, "Bids containing patently obvious, unintentional, and substantial mechanical, clerical, or mathematical errors, or errors of unintentional omission of a substantial quantity of work, labor, material, or services made directly in the compilation of the bid, may be withdrawn by the contractor if clear and convincing sworn, written evidence of such errors is furnished to the public entity within forty-eight hours of the bid opening excluding Saturdays, Sundays, and legal holidays".

5.4.2 Prior to the time and date designated for receipt of bids, bids submitted early may be modified or withdrawn only by notice to the party receiving bids at the place and prior to the time designated for receipt of bids.

5.4.3 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids provided that they are then fully in conformance with these Instructions to Bidders.

5.4.4 Bid Security shall be in an amount sufficient for the bid as modified or resubmitted.

5.5 Prohibition of Discriminatory Boycotts of Israel

By submitting a bid, the bidder certifies and agrees that the following information is correct:

In preparing its bid, the bidder has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israel-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The bidder has also not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. The state reserves the right to reject any bid if this certification is subsequently determined to be false and to terminate any contract awarded based on such a false response.

ARTICLE 6

CONSIDERATION OF BIDS

6.1 Opening of Bids

6.1.1 The properly identified Bids received on time will be opened publicly and will be read aloud,

and a tabulation abstract of the amounts of the base bids and alternates, if any, will be made available to Bidders.

6.2 Rejection of Bids

6.2.1 The Owner shall have the right to reject any or all bids and in particular to reject a bid not accompanied by any required bid security or data required by the Bid Documents or a bid in any way incomplete or irregular.

6.3 Acceptance of Bid

6.3.1 It is the intent of the Owner, if he accepts any alternates, to accept them in the order in which they are listed in the Bid Form. Determination of the Low Bidder shall be on the basis of the sum of the base bid and the alternates accepted. However, the Owner shall reserve the right to accept alternates in any order which does not affect determination of the Low Bidder.

ARTICLE 7

POST-BID INFORMATION

7.1 Submissions

7.1.1 At the Pre-Construction Conference, the Contractor shall submit the following information to the Architect.

7.1.1.1 A designation of the work to be performed by the Contractor with his own forces.

7.1.1.2 A breakdown of the Contract cost attributable to each item listed in the Schedule of Values Form (attached). No payments will be made to the Contractor until this is received.

7.1.1.3 The proprietary names and the suppliers of principal items or systems of material and equipment proposed for the work.

7.1.1.4 A list of names and business domiciles of all Subcontractors, manufacturers, suppliers or other persons or organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the work. It is the preference of the Owner that, to the greatest extent possible or practical, the Contractor utilize Louisiana Subcontractors, manufacturers, suppliers and labor.

7.1.2 The General Contractor shall be responsible for actions or inactions of Subcontractors and/or material suppliers.

The General Contractor is totally responsible for any lost time or extra expense incurred due to a Subcontractor's or Material Supplier's failure to perform. Failure to perform includes, but is not limited to, a Subcontractor's financial failure, abandonment of the project, failure to make prompt delivery, or failure to do work up to standard. Under no circumstances shall the Owner mitigate the General Contractor's losses or reimburse the General Contractor for losses caused by these events.

7.1.3 In accordance with La. R.S. 38:2227 [references La R.S. 38:2212(A)(3)(c)(ii), which has since been renumbered as La R.S. 38:2212(B)(3)], La. R.S. 38:2212.10 and La. R.S. 23:1726(B) the apparent low bidder on this project shall submit the completed Attestations Affidavit (Past Criminal Convictions of Bidders, Verification of Employees and Certification Regarding Unpaid Workers Compensation Insurance) form found within this bid package to University Of Louisiana - Monroe within 10 days <u>after</u> the opening of bids**.**

ARTICLE 8

PERFORMANCE AND PAYMENT BOND

8.1 Bond Required

8.1.1 The Contractor shall furnish and pay for a Performance and Payment Bond written by a company licensed to do business in Louisiana, which shall be signed by the surety's agent or attorney-in-fact, in an amount equal to 100% of the Contract amount. Surety must be listed currently on the U. S. Department of Treasury Financial Management Service List (Treasury List) as approved for an amount equal to or greater than the contract amount, or must be an insurance company domiciled in Louisiana or owned by Louisiana residents. If surety is qualified other than by listing on the Treasury list, the contract amount may not exceed fifteen percent of policyholders' surplus as shown by surety's most recent financial statements filed with the Louisiana Department of Insurance and

may not exceed the amount of $500,000. However, a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A. M. Best's Key Rating Guide shall not be subject to the $500,000 limitation, provided that the contract amount does not exceed ten percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide nor fifteen percent of policyholders' surplus as shown by surety's most recent financial statements filed with the Louisiana Department of Insurance. The Bond shall be signed by the surety's agent or attorney-in-fact. The Bond shall be in favor of the University of Louisiana - Monroe.

8.2 Time of Delivery and Form of Bond

8.2.1 The Bidder shall deliver the required bond to the Owner simultaneous with the execution of the Contract.

8.2.2 Bond shall be in the form furnished by University of Louisiana - Monroe, entitled CONTRACT BETWEEN OWNER AND CONTRACTOR AND PERFORMANCE AND PAYMENT BOND, a copy of which is included in the Bid Documents.

8.2.3 The Bidder shall require the Attorney-in-Fact who executes the required bond on behalf of the surety to affix thereto a certified and current copy of his power of Attorney.

ARTICLE 9

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

9.1 Form to be Used

9.1.1 Form of the Contract to be used shall be furnished by University of Louisiana - Monroe, an example of which is bound in the Bid Documents.

9.2 Award

9.2.1 After award of the Contract, the successful Bidder, if a corporation, shall furnish to the Owner the most current copy of a Disclosure of Ownership Affidavit on file with the Secretary of State.

9.2.2 In accordance with Louisiana Law, when the Contract is awarded, the successful Bidder shall, at the time of the signing of the Contract, execute the Non-Collusion Affidavit included in the Contract Documents

9.2.3 When this project is financed either partially or entirely with State Bonds, the award of this Contract is contingent upon the sale of bonds by the State Bond Commission. The State shall incur no obligation to the Contractor until the Contract Between Owner and Contractor is duly executed.

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: PURCHASING OFFICE
UNIVERSITY OF LOUISIANA - MONROE
700 UNIVERSITY AVE
COENEN HALL 140
MONROE, LOUISIANA 71209
(Owner to provide name and address of owner)

BID FOR: ULM Hemphill Hall Chiller Replacement
University of Louisiana at Monroe
Monroe, LA
Bid No. 50006-072
(*Owner to provide name of project and other identifying information)*

The undersigned bidder hereby declares and represents that she/he: a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: John J. Guth Associates, Inc. and dated: April 21, 2025
(Owner to provide name of entity preparing bidding documents.)

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____ .

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____ Dollars ($_____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

Add all work to replace chiller CH-2 Dollars ($ _____)

Alternate No. 2 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

Add all work to replace chilled water pumps CWP-1 and CWP-2 Dollars ($ _____)

Alternate No. 3 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

Add all work to replace condenser water pumps Cond. W P-3 and Cond. W P-4 Dollars ($ _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

_____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

**** A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).
BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

BID BOND

FOR

UNIVERSITY OF LOUISIANA AT MONROE PROJECTS

Date: _____

KNOW ALL MEN BY THESE PRESENTS:

That_____of_____, as Principal, and_____, as Surety, are held and firmly bound unto the University of Louisiana at Monroe, in the full and just sum of five (5%) percent of the total amount of this proposal, including all alternates, lawful money of the United States, for payment of which sum, well and truly be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally firmly by these presents.

Surety represents that it is listed on the current U. S. Department of the Treasury Financial Management Service list of approved bonding companies as approved for an amount equal to or greater that the amount for which it obligates itself in this instrument or that it is a Louisiana domiciled insurance company with at least an A - rating in the latest printing of the A. M. Best's Key Rating Guide. If surety qualifies by virtue of its Best's listing, the Bond amount may not exceed ten percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide.

Surety further represents that it is licensed to do business in the State of Louisiana and that this Bond is signed by surety's agent or attorney-in-fact. This Bid Bond is accompanied by appropriate power of attorney.

THE CONDITION OF THIS OBLIGATION IS SUCH that, whereas said Principal is herewith submitting its proposal to the Obligee on a Contract for:

_____

NOW, THEREFORE, if the said Contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the Contract in writing and give a good and sufficient bond to secure the performance of the terms and conditions of the Contract with surety acceptable to the Obligee, then this obligation shall be void; otherwise this obligation shall become due and payable.

_____	_____
PRINCIPAL (BIDDER)	SURETY
BY: _____	BY: _____
AUTHORIZED OFFICER-OWNER-PARTNER	AGENT OR ATTORNEY-IN-FACT(SEAL)

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

University of Louisiana – Monroe
Hemphill Hall Chiller Replacement
University of Louisiana - Monroe
700 University Ave
Monroe, LA 71209

THE OWNER:
(Name, legal status and address)

University of Louisiana at Monroe
Strauss Hall, Ste 255
700 University Ave.
Monroe, LA 71209

THE ARCHITECT:
(Name, legal status and address)

John J. Guth Associates, Inc.
208 Milam Street
Shreveport, LA 71101

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

TABLE OF ARTICLES

INDEX
(Topics and numbers in bold are Section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and 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 the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 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 otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 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 evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 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. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

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 notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for 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 current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor 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 Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These

obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. 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. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional,

whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work,

provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general 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. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the

Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

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 that the Contractor, by these Contract 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 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.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect 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.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine 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 the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, 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 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
.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;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. 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.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, 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. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or a Separate Contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, 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 date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' 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 by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. 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.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. 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 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.

§ 9.10.2 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, (3) a written statement that the Contractor knows of no 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) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and 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. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed 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, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents;
.3 terms of special warranties required by the Contract Documents; or
.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

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

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities

proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 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.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the

procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 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; (2) the Architect and Architect's consultants; and (3) Separate Contractors, 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 those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and

approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

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

.2 An act of government, such as a declaration of national emergency, that requires 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; or

.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 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;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.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.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of 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; and

.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.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall 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.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, 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.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker 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 the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 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.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions modify, change, delete from or add to the General Conditions of the Contract for Construction, AIA Document A201, 2017 Edition. Where any Article of the General Conditions is modified or any Section, Paragraph, Subparagraph or Clause thereof is modified or deleted by these supplements, the unaltered provisions of that Section, Article, Paragraph, Subparagraph or Clause shall remain in effect.

Articles, Sections, Paragraphs, Subparagraphs or Clauses modified or deleted have the same numerical designation as those occurring in the General Conditions.

ARTICLE 1

GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1. The Contract Documents

In Section 1.1.1 delete the third sentence, and add the following sentence:
The Contract Documents shall include the Bid Documents as listed in the Instructions to Bidders and any modifications made thereto by addenda.

1.1.8 Initial Decision Maker

Delete all after the words, "shall not show partiality to the Owner or Contractor".

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE [REFER TO *La R.S. 38:2317*]

1.5.1 Delete the first sentence of the paragraph.

1.5.1 In the third sentence: delete the remainder after the word "publication".

1.7 DIGITAL DATA USE AND TRANSMISSION

In the first sentence after the words, "in digital form" delete ". The parties will use AIA Document E203 2013, Building Information Modeling and Digital Data Exhibit".

1.8 BUILDING INFORMATION MODELS USE AND RELIANCE

Delete Section 1.8.

ARTICLE 2

OWNER

2.2 EVIDENCE OF THE OWNER'S FINANCIAL ARRANGEMENTS

Delete Section 2.2.

2.3 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.3.1 In the first sentence, delete: all before "the Owner shall secure…"

Delete Section 2.3.2 and substitute the following:

2.3.2 The term Architect, when used in the Contract Documents, shall mean the prime Designer (Architect, Engineer, or Landscape Architect), or his authorized representative, lawfully licensed to practice architecture, engineering, or landscape architecture in the State of Louisiana, identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number.

2.3.3 Delete the words: "to whom the Contractor has no reasonable objection and".

ARTICLE 3

CONTRACTOR

3.4 LABOR AND MATERIALS

3.4.2 Delete Section 3.4.2.

Delete Section 3.4.3 and substitute with the following:

3.4.3 Contractor and its employees, officers, agents, representatives, and Subcontractors shall conduct themselves in an appropriate and professional manner, in accordance with the Owner's requirements, at all times while working on the Project. Any such individual who behaves in an inappropriate manner or who engages in the use of inappropriate language or conduct while on Owner's property, as determined by the Owner, shall be removed from the Project at the Owner's request. Such individual shall not be permitted to return without the written permission of the Owner. The Owner shall not be responsible or liable to Contractor or any Subcontractor for any additional costs, expenses, losses, claims or damages incurred by Contractor or its Subcontractor as a result of the removal of an individual from the Owner's property pursuant to this Section. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

3.5 WARRANTY

3.5.2 Replace reference to "Section 9.8.4" with "Section 9.8.6".

3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS (La R.S. 40:1724[A])

3.7.1 Delete Section 3.7.1.

3.7.2 In Section 3.7.2, replace the word "public" with the word "State".

Delete Section 3.7.5 and substitute the following:

3.7.5 If, during the course of the Work, the Contractor discovers human remains, unmarked burial or archaeological sites, burial artifacts, or wetlands, which are not indicated in the Contract Documents, the Contractor shall follow all procedures mandated by State and Federal law, including but not limited to La R.S. 8:671 et seq., the Office of Coastal Protection and Restoration, and Sections 401 & 404 of the Federal Clean Water Act. Request for adjustment of the Contract Sum and Contract Time arising from the existence of such remains or features shall be submitted in writing to the Owner pursuant to the Contract Documents.

3.8 ALLOWANCES

Delete Sections 3.8.1, 3.8.2, and 3.8.3 in their entirety and add the following new Section 3.8.1:

3.8.1 Allowances shall not be made on any of the Work.

3.9 SUPERINTENDENT

3.9.1 Add the following to the end of the paragraph:
Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

3.10 CONTRACTOR'S CONSTRUCTION AND SUBMITTAL SCHEDULES

3.10.1 Add the following: For projects with a contract sum greater than $1,000,000.00, the Contractor shall include with the schedule, for the Owner's and Architect's information, a network analysis to identify those tasks which are on the critical path, i.e., where any delay in the completion of these tasks will lengthen the project timescale, unless action is taken. A revised schedule shall be submitted with each Application and Certificate for Payment. No payment shall be made until this schedule is received.

3.10.3 In the first sentence, delete the word "general".

After the first sentence, add the following:
If the Work is not on schedule, as determined by the Architect, and the Contractor fails to take action to bring the Work on schedule, then the Contractor shall be deemed in default under this Contract and the progress of the Work shall be deemed unsatisfactory. Such default may be considered grounds for termination by the Owner for cause in accordance with Section 14.2.

Add the following Sections:

3.10.4 Add the following: Submittal by the contractor of a schedule or other documentation showing a completion date for his Work prior to the completion date stated in the contract shall not impose any obligation or responsibility on the Owner or Architect for the earlier completion date.

3.10.5 In the event the Owner employs a commissioning consultant, the Contractor shall cooperate fully in the commissioning process and shall require all subcontractors and

others under his control to cooperate. The purpose of such services shall be to ensure that all systems perform correctly and interactively according to the provisions of the Contract Documents.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following: This requirement is of the essence of the contract. The Architect shall determine the value of these documents and this amount shall not be approved for payment to the Contractor until all of the listed documents are delivered to the Architect in good order, completely marked with field changes and otherwise complete in all aspects.

ARTICLE 4

ARCHITECT

4.2 ADMINISTRATION OF THE CONTRACT

4.2.1 In the first sentence, delete the phrase: "the date the Architect issues the final Certificate for Payment" and replace with the phrase "final payment is due, and with the Owner's concurrence, from time to time during the one year period for correction of Work described in Section 12.2."

4.2.2 In the first sentence, after the phrase: "become generally familiar with"; insert the following: "and to keep the Owner informed about".

In the first sentence, after the phrase "portion of the Work completed", insert the following: "to endeavor to guard the Owner against defects and deficiencies in the Work,"

4.2.4 In the first sentence, delete all after "The Owner and Contractor", and add the following "may communicate directly with each other, when deemed necessary by the Owner, and the Owner will notify the Architect of any decision."

4.2.10 Add the following sentence to the end of Section 4.2.10: There shall be no restriction on the Owner having a Representative.

4.2.11 Add the following sentence to the end of Section 4.2.11:

If no agreement is made concerning the time within which interpretation required of the Architect shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretation until 15 days after written request is made for them.

4.2.14 Insert the following sentence between the second and third sentences of Section 4.2.14:

If no agreement is made concerning the time within which interpretation required of the Architect shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretation until 15 days after written request is made for them.

ARTICLE 5

SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

Delete Section 5.2.1, and substitute the following:

5.2.1 Unless otherwise required by the Contract Documents, the Contractor shall furnish at the Pre-Construction Conference, to the Owner and the Architect, in writing, the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. No Contractor payments shall be made until this information is received.

Delete Section 5.2.2, and substitute the following:

5.2.2 The Contractor shall be solely responsible for selection and performance of all subcontractors. The Contractor shall not be entitled to claims for additional time and/or an increase in the contract sum due to a problem with performance or nonperformance of a subcontractor.

Delete Sections 5.2.3 and 5.2.4 and substitute the following:

5.2.3 The Contractor shall notify the Architect and the Owner when a subcontractor is to be changed and substituted with another subcontractor.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

Delete Sections 5.4, 5.4.1, 5.4.2 and 5.4.3

ARTICLE 7

CHANGES IN THE WORK

7.1 GENERAL

Add the following Sections:

7.1.4 As part of the pre-construction conference submittals, the Contractor shall submit the following prior to the Contractor's initial request for payment:

7.1.4.1 Fixed job site overhead cost itemized with documentation to support daily rates.

7.1.4.2 Bond Premium Rate with supporting information from the General Contractor's carrier.

7.1.4.3 Labor Burden by trade for both Subcontractors and General Contractor. The Labor Burden shall be supported by the Worker's Compensation and Employer's Liability Insurance Policy Information Page. Provide for all trades.

7.1.4.4 Internal Rate Charges for all significant company owned equipment.

7.1.5 If the General Contractor fails to submit the aforementioned documentation as part of the pre-construction submittals, then pay applications shall not be processed until such time as the Owner receives this information.

7.2 CHANGE ORDERS

Delete Section 7.2.1, and substitute the following Sections:

7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, the Architect, and the Contractor issued after execution of the Contract, authorizing a change in the Work and/or an adjustment in the Contract Sum and/or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the adjustment in the Contract Sum or the Contract Time. Any reservation of rights, stipulation, or other modification made on the change order by the contractor shall have no effect.

7.2.2 "Cost of the Work" for the purpose of Change Orders shall be the eligible costs required to be incurred in performance of the Work and paid by the Contractor and Subcontractors which eligible costs shall be limited to:

7.2.2.1 Actual wages paid directly to labor personnel, with a labor burden markup exclusively limited to applicable payroll taxes, worker's compensation insurance, unemployment compensation, and social security taxes for those labor personnel performing the Work. Wages shall be the basic hourly labor rate paid an employee exclusive of fringe benefits or other employee costs. The labor burden percentage for the "Cost of the Work" is limited to categories listed herein. Employer-provided health insurance, fringe benefits, employee training (whether a requirement of employment or not), vacation pay, etc., are examples of ineligible labor burden costs which ***shall not*** be included, as these costs are already compensated by the Overhead and Profit markup.

Supervision shall not be included as a line item in the "Cost of the Work", except when the change results in a documented delay in the critical path, as described in Section 7.2.7.

7.2.2.2 Cost of all materials and supplies necessary and required to perform the Work, identifying each item and its individual cost, including taxes. Incidental consumables are not eligible costs and shall not be included.

7.2.2.3 Cost of each necessary piece of machinery and equipment required to perform the Work, identifying each item and its individual cost, including taxes. Incidental small tools of a specific trade (i.e., shovels, saws, hammers, air compressors, etc.,) and general use vehicles, such as pickup trucks even for

moving items around the site, fuel for these general use vehicles, travel, lodging, and/or meals are not eligible and shall not be included.

7.2.2.4 Eligible Insurance costs shall be limited to documented increases in "Builder's Risk" insurance premium / costs only. Commercial General Liability, Automobile Liability, and all other required insurances, where referenced in the Contract shall be considered part of normal overhead. These costs are already compensated by the Overhead and Profit markup.

7.2.2.5 Cost for the General Contractor Performance and Payment Bond premium, where the documented cost of the premiums have been increased due to the Change Order.

7.2.3 Overhead and Profit - The Contractor and Subcontractor shall be due home office fixed overhead and profits on the Cost of the Work, but shall not exceed a total of 16% of the direct cost of any portion of Work.

The credit to the Owner resulting from a change in the Work shall be the sum of those items above, including overhead and profit. Where a change results in both credits to the Owner and extras to the Contractor for related items, overhead and profit shall be computed for credits to the Owner and extras to the Contractor. The Owner shall receive full credit for the computed overhead and profit on credit change order items.

7.2.4 The cost to the Owner resulting from a change in the Work shall be the sum of: Cost of the Work (as defined at Section 7.2.2) and Overhead and Profit (as defined at Section 7.2.3), and shall be computed as follows:

7.2.4.1 When all of the Work is General Contractor Work; 8% markup on the Cost of the Work.

7.2.4.2 When the Work is all Subcontract Work; 8% markup on the Cost of the Work for Subcontractor's Overhead and Profit, plus 8% markup on the Cost of the Work, not including the Subcontractor's Overhead and Profit markup, for General Contractor's Overhead and Profit.

7.2.4.3 When the Work is a combination of General Contractor Work and Subcontract Work; that portion of the direct cost that is General Contract Work shall be computed per Section 7.2.4.1 and that portion of the direct cost that is Subcontract Work shall be computed per Section 7.2.4.2.

Premiums for the General Contractor's bond may be included, but after the markup is added to the Cost of the Work.
Premiums for the Subcontractor's Bond shall not be included.

7.2.4.4 Subcontract cost shall consist of the items in Section 7.2.2 above plus Overhead and Profit as defined in Section 7.2.3.

7.2.5 Before a Change Order is prepared, the Contractor shall prepare and deliver to the Architect the following information concerning the Cost of the Work, not subject to waiver, within a reasonable time after being notified to prepare said Change Order:

A detailed, itemized list of labor, material and equipment costs for the General Contractor's Work including quantities and unit costs for each item of labor, material and equipment.

An itemized list of labor, material and equipment costs for each Subcontractor's and/or Sub-Subcontractor's Work including quantities and unit costs for each item of labor, material and equipment.

7.2.6 After a Change Order has been approved, no future requests for extensions of time or additional cost shall be considered for that Change Order.

7.2.7 Extended fixed job-site costs are indirect costs that are necessary to support the work in the field. Examples of fixed job-site costs are field office rental, salaries of field office staff, field office utilities, and telephone.

Extended fixed job-site costs or equitable adjustment may be included in a Change Order due to a delay in the critical path, with the exception of weather related delays. In the event of a delay in the critical path, the Contractor shall submit all changes or adjustments to the Contract Time **within twenty-one (21) days** of the event giving rise to the delay. The Contractor shall submit documentation and justification for the adjustment by performing a critical path analysis of its most recent schedule in use prior to the change, which shows an extension in critical path activities.

The Contractor shall notify the Architect in writing that the Contractor is making a claim for extended fixed job-site overhead as required by Section 15.1.2. The Contractor shall provide proof that the Contractor is unable to mitigate financial damages through Alternate Work within this Contract or replacement work. "Replacement Work" is that work which the Contractor is obligated to perform under any construction contract separate from this Contract. Reasonable proof shall be required by the Architect that the delays affected the Completion Date.

7.2.8 "Cost of the Work" whether General Contractor cost or Subcontractor cost shall not apply to the following:

7.2.8.1 Salaries or other compensation of the Contractor's personnel at the Contractor's principal office and branch offices.

7.2.8.2 Any part of the Contractor's capital expenses, including interest on the Contractor's capital employed for the Work.

7.2.8.3 Overhead and general expenses of any kind or the cost of any item not specifically and expressly included above in Cost of the Work.

7.2.8.4 Cost of supervision refer to section 7.2.2.1, with exception as provided in Section 7.2.7.

7.2.9 When applicable as provided by the Contract, the cost to Owner for Change Orders shall be determined by quantities and unit prices. The quantity of any item shall be as

submitted by the Contractor and approved by the Architect. Unit prices shall cover cost of Material, Labor, Equipment, Overhead and Profit.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.3 In the first sentence after "following methods" insert: ", but not to exceed a specified amount".

7.3.4 From .1 of the list, delete all after "Costs of labor, including" and substitute the following "social security, old age and employment insurance, applicable payroll taxes, and workers' compensation insurance;"

Delete the following from .4 of the list: "permit fees,"

Delete Section 7.3.9 and substitute the following:

7.3.9 Pending final determination of the total costs of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs.

ARTICLE 8

TIME

8.1 DEFINITIONS

Add the following:

8.1.5 The Contract Time shall not be changed by the submission of a schedule that shows an early completion date unless specifically authorized by change order.

8.2 PROGRESS AND COMPLETION

Add to Section 8.2.1 the following:

Completion of the Work must be within the Time for Completion stated in the Agreement, subject to such extensions as may be granted under Section 8.3. The Contractor agrees to commence Work not later than fourteen (14) days after the transmittal date of Written Notice to Proceed from the Owner and to substantially complete the project within the time stated in the Contract. The Owner will suffer financial loss if the project is not substantially complete in the time set forth in the Contract Documents. The Contractor and the Contractor's Surety shall be liable for and shall pay to the Owner the sum stated in the Contract Documents as fixed, agreed and liquidated damages for each consecutive calendar day (Saturdays, Sundays and holidays included) of delay until the Work is substantially complete. The Owner shall be entitled to the sum stated in the Contract Documents. Such Liquidated Damages shall be withheld by the Owner from the amounts due the Contractor for progress payments.

Delete Section 8.2.2.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 In the first sentence after the words "Owner pending" delete the words "mediation and binding dispute resolution" and add the word "litigation", and delete the last word "determine" and add the following: "recommend, subject to Owner's approval of Change Order. If the claim is not made within the limits of Article 15, all rights for future claims for that month are waived."

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

Delete Section 9.1.2.

Delete Section 9.2 and substitute the following:

9.2 SCHEDULE OF VALUES

At the Pre-Construction Conference, the Contractor shall submit to the Owner and the Architect a Schedule of Values prepared as follows:

9.2.1 The attached Schedule of Values Format shall be used. If applicable, the cost of Work for each section listed under each division, shall be given. The cost for each section shall include Labor, Materials, Overhead and Profit.

9.2.2 The Total of all items shall equal the Total Contract Sum. This schedule, when approved by the Architect, shall be used as a basis for the Contractor's Applications for Payment and it may be used for determining the cost of the Work in deductive change orders, when a specific item of Work listed on the Schedule of Values is to be removed. Once the Schedule of Values is submitted at the Pre-Construction Conference, the schedule shall not be modified without approval from the Owner and Architect.

9.3 APPLICATIONS FOR PAYMENT

Delete Sections 9.3.1, 9.3.1.1, and 9.3.1.2 and substitute the following:

9.3.1 Monthly, the Contractor shall submit to the Architect an Application and Certification for Payment form, supported by any additional data substantiating the Contractor's right to payment as the Owner or the Architect may require. Application for Payment shall be submitted on or about the first of each month for the value of labor and materials incorporated into the Work and of materials, suitably stored, at the site as of the twenty-fifth day of the preceding month, less normal retainage as follows, per La R.S. 38:2248:

9.3.1.1 Projects with Contract price up to $500,000.00 – 10% of the Contract price.

9.3.1.2 Projects with Contract price of $500,000.00, or more – 5% of the Contract price.

9.3.1.3 No payment shall be made until the revised schedule required by Section 3.10.1 is received.

9.3.1.4 The normal retainage shall not be due the Contractor until after substantial completion and expiration of the forty-five day lien period and submission to the Architect of a clear lien certificate, consent of surety, and invoice for retainage.

Delete Section 9.3.2 and substitute the following:

9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. Payments for materials or equipment stored on the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, including applicable insurance.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

Section 9.5.1.7: Delete the word "repeated".

Delete Section 9.5.4.

9.6 PROGRESS PAYMENTS

Delete Section 9.6.1 and substitute the following:

9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment within twenty days except for projects funded fully or in part by a Federal reimbursement program. For such projects the Owner will make payment in a timely manner consistent with reimbursement.

9.6.2 Delete the phrase: "no later than seven days" from the first sentence.

After the end of the second sentence, add the following:

La R.S. 9:2784 (A) and (C) require a Contractor or Subcontractor to make payment due to each Subcontractor and supplier within fourteen (14) consecutive days of the receipt of payment from the Owner. If not paid, a penalty in the amount of ½ of 1% per day is due, up to a maximum of 15% from the expiration date until paid. The contractor or subcontractor, whichever is applicable, is solely responsible for payment of a penalty.

9.6.4 Delete the first two sentences of Section 9.6.4 and add the following to the end of the Section:

Pursuant to La. R.S. 38:2242 and La. R.S. 38:2242.2, when the Owner receives any claim of nonpayment arising out of the Contract, the Owner shall deduct 125% of such claim from the Contract Sum. The Contractor, or any interested party, may deposit security, in accordance with La. R.S. 38:2242.2, guaranteeing payment of the claim with the recorder

of mortgages of the parish where the Work has been done. When the Owner receives original proof of such guarantee from the recorder of mortgages, the claim deduction will be added back to the Contract Sum.

Delete Section **9.7 FAILURE OF PAYMENT**.

Delete Section 9.8 and substitute the following:

9.8 SUBSTANTIAL COMPLETION

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The Architect shall determine if the project is substantially complete in accordance with this Section.

9.8.2 When the Contractor considers that the Work is Substantially Complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

9.8.3 Upon receipt of the Contractor's list, the Architect shall make an inspection to determine whether the Work is substantially complete. A prerequisite to the Work being considered as substantially complete is the Owner's receipt of the executed Roofing Contractor's and Roofing Manufacturer's guarantees, where roofing Work is part of the Contract. Prior to inspection by the Architect, the Contractor shall notify the Architect that the project is ready for inspection by the State Fire Marshal's office. 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 for its intended use, the Contractor shall, before the Work can be considered as Substantially Complete, 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.

9.8.4 When the Architect determines that the project is Substantially Complete, he shall prepare a punch list of exceptions and the dollar value related thereto. The monetary value assigned to this list will be the sum of the cost estimate for each particular item of Work the Architect develops based on the mobilization, labor, material and equipment costs of correcting the item and shall be retained from the monies owed the contractor, above and beyond the standard lien retainage. The cost of these items shall be prepared in the same format as the schedule of values. At the end of the forty-five day lien period payment shall be approved for all punch list items completed up to that time. After that payment, none of the remaining funds shall be due the contractor until all punch list items are completed and are accepted by the Architect. If the dollar value of the punch list exceeds the amount of funds, less the retainage amount, in the remaining balance of the Contract, then the Project shall not be considered as substantially complete. If funds remaining are less than that required to complete the Work, the Contractor shall pay the difference.

9.8.5 When the preparation of the punch list is complete the Architect shall prepare a Recommendation of Acceptance incorporating the punch list and submit it to the Owner. Upon approval of the Recommendation of Acceptance, the Owner may issue a Notice of Acceptance of Building Contract which shall establish the Date of Substantial Completion. The Contractor shall record the Notice of Acceptance with the Clerk of Court in the Parish in which the Work has been performed. If the Notice of Acceptance has not been recorded seven (7) days after issuance, the Owner may record the Acceptance at the Contractor's expense. All additive change orders must be processed before issuance of the Recommendation of Acceptance. The Owner shall not be responsible for payment for any Work associated with change orders that is not incorporated into the contract at the time of the Recommendation of Acceptance.

9.8.6 Warranties required by the Contract Documents shall commence on the date of Acceptance of the Work unless otherwise agreed to in writing by the Owner and Contractor. Unless otherwise agreed to in writing by the Owner and Contractor, security, maintenance, heat, utilities, damage to the Work not covered by the punch list and insurance shall become the Owner's responsibility on the Date of Substantial Completion.

9.8.7 If all punch list items have not been completed by the end of the forty-five (45) day lien period, through no fault of the Architect or Owner, the Owner may hold the Contractor in default. If the Owner finds the Contractor is in default, the Surety shall be notified. If within forty-five (45) days after notification, the Surety has not completed the punch list, through no fault of the Architect or Owner, the Owner may, at his option, contract to have the balance of the Work completed and pay for such Work with the unpaid funds remaining in the Contract sum. Finding the Contractor in default shall constitute a reason for disqualification of the Contractor from bidding on future state contracts. If the surety fails to complete the punch list within the stipulated time period, the Owner may not accept bonds submitted, in the future, by the surety.

9.9 PARTIAL OCCUPANCY OR USE

Delete Section 9.9.1 and substitute the following:

9.9.1 Partial Occupancy is that stage in the progress of the Work when a designated portion of the Work is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the designated portion of the Work for its intended use. The Owner may occupy or use any substantially completed portion of the Work so designated by separate agreement with the Contractor and authorized by public authorities having jurisdiction over the Work. Such occupancy or use may commence provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers the designated portion substantially complete the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld.

9.10 FINAL COMPLETION AND FINAL PAYMENT

Delete Section 9.10.4 and replace with the following:

9.10.4 The making of final payment shall not constitute a waiver of Claims by the Owner for the following:

9.10.4.1 Claims, security interests, or encumbrances arising out of the Contract and unsettled;

9.10.4.2 failure of the Work to comply with the requirements of the Contract Documents irrespective of when such failure is discovered;

9.10.4.3 terms of special warranties required by the Contract Documents; or

9.10.4.4 audits performed by the Owner, after final payment.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.2 In the first sentence, between the words: "bearing on" and "safety", add the words: "the health and,"

10.3 HAZARDOUS MATERIALS

10.3.1 In the second sentence after (PCB) add: "or lead".

10.3.2 After the first sentence, delete all remaining sentences.

Add at the end: "The Contract time shall be extended appropriately."

Delete Section 10.4 and substitute the following:

10.4 EMERGENCIES

In an emergency affecting the safety of persons or property, the Contractor shall notify the Owner and Architect immediately of the emergency, simultaneously acting at his discretion to prevent damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency Work shall be determined as provided in Article 15 and Article 7.

ARTICLE 11

INSURANCE AND BONDS

AIA A101 – 2017 Exhibit A is not a part of these documents. Delete all of Sections 11.1, 11.2, 11.3, 11.4, and 11.5, and substitute the following:

INSURANCE REQUIREMENTS FOR
NEW CONSTRUCTION, ADDITIONS AND RENOVATIONS

11.1 CONTRACTOR'S LIABILITY INSURANCE

The Contractor shall purchase and maintain without interruption for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work hereunder by the Contractor, its agents, representatives, employees or subcontractors. The duration of the contract shall be from the inception of the contract until the date of final payment.

11.2 MINIMUM SCOPE AND LIMITS OF INSURANCE

11.2.1 Worker's Compensation

Worker's Compensation insurance shall be in compliance with the Worker's Compensation law of the Contractor's headquarters. Employers Liability is included with a minimum limit of $1,000,000 per accident/per disease/per employee. If Work is to be performed over water and involves maritime exposure, applicable LHWCA, Jones Act or other maritime law coverage shall be included. A.M. Best's insurance company rating requirement may be waived for Worker's compensation coverage only.

11.2.2 Commercial General Liability

Commercial General Liability insurance, including Personal and Advertising Injury Liability and Products and Completed Operations Liability, shall have a minimum limit per occurrence based on the project value. The Insurance Services Office (ISO) Commercial General Liability occurrence coverage form CG 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. Claims-made form is unacceptable.

The aggregate loss limit must apply to each project. ISO form CG 25 03 (current form approved for use in Louisiana), or equivalent, shall also be submitted. The State project number, including part number, and project name shall be included on this endorsement.

COMBINED SINGLE LIMIT (CSL) PER OCCURRENCE

Type of Construction	**Projects up to $1,000,000**	**Projects over $1,000,000 up to $10,000,000**	**Projects over $10,000,000**
New Buildings:			
Each Occurrence Minimum Limit	$1,000,000	$2,000,000	$4,000,000
Per Project Aggregate	$2,000,000	$4,000,000	$8,000,000
Each Occurrence Minimum Limit	$1,000,000**	$2,000,000**	$4,000,000**

Per Project Aggregate	2 times per occur limit**	2 times per occur limit**	2 times per occur limit**

**While the minimum Combined Single Limit of $1,000,000 is required for any renovation, the limit is calculated by taking 10% of the building value and rounding it to the nearest $1,000,000 to get the insurance limit. Example: Renovation on a $33,000,000 building would have a calculated $3,000,000 combined single limit of coverage (33,000,000 times .10 = 3,300,000 and then rounding down to $3,000,000). If the calculated limit is less than the minimum limit listed in the above chart, then the amount needed is the minimum listed in the chart. Maximum per occurrence limit required is $10,000,000 regardless of building value. The per project aggregate limit is then calculated as twice the per occurrence limit.

11.2.3 Automobile Liability

Automobile Liability Insurance shall have a minimum combined single limit per occurrence of $1,000,000. ISO form number CA 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. This insurance shall include third-party bodily injury and property damage liability for owned, hired and non-owned automobiles.

11.2.4 Excess Umbrella

Excess Umbrella Insurance may be used to meet the minimum requirements for General Liability and Automobile Liability only.

11.2.5 Builder's Risk

11.2.5.1 Builder's Risk Insurance shall be in an amount equal to the amount of the construction contract including any amendments and shall be upon the entire Work included in the contract. The policy shall provide coverage equivalent to the ISO form number CP 10 20, Broad Form Causes of Loss (extended, if necessary, to include the perils of wind, earthquake, collapse, vandalism/malicious mischief, and theft, including theft of materials whether or not attached to any structure). The policy must include architects' and engineers' fees necessary to provide plans, specifications and supervision of Work for the repair and/or replacement of property damage caused by a covered peril, not to exceed 10% of the cost of the repair and/or replacement.

11.2.5.3 A Specialty Contractor may provide an installation floater in lieu of a Builder's Risk policy, with the similar coverage as the Builder's Risk policy, upon the system to be installed in an amount equal to the amount of the contract including any amendments. Flood coverage is not required.

11.2.5.4 The policy must include coverage for the Owner, Contractor and any subcontractors as their interests may appear.

11.2.7 Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and accepted by the Owner. The Contractor shall be responsible for all deductibles and self-insured retentions.

11.3 OTHER INSURANCE PROVISIONS

11.3.1 The policies are to contain, or be endorsed to contain, the following provisions:

11.3.1.1 Worker's Compensation and Employers Liability Coverage

11.3.1.1.1 To the fullest allowed by law, the insurer shall agree to waive all rights of subrogation against the Owner, its officers, agents, employees and volunteers for losses arising from Work performed by the Contractor for the Owner.

11.3.1.2 Commercial General Liability Coverage

11.3.1.2.1 The Owner, its officers, agents, employees and volunteers are to be added as additional insureds as respects liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor, premises owned, occupied or used by the Contractor. ISO Form CG 20 10 (for ongoing work) AND CG 20 37 (for completed work) (current forms approved for use in Louisiana), or equivalent, are to be used.

11.3.1.2.2 The Contractor's insurance shall be primary as respects the Owner, its officers, agents, employees and volunteers for any and all losses that occur under the contract. The coverage shall contain no special limitations on the scope of protection afforded to the Owner, its officers, officials, employees or volunteers. Any insurance or self-insurance maintained by the Owner shall be excess and non-contributory of the Contractor's insurance.

11.3.1.3 Builder's Risk

The policy must include an endorsement providing the following:

In the event of a disagreement regarding a loss covered by this policy, which may also be covered by a State of Louisiana self-insurance or commercial property policy through the Office of Risk Management (ORM), Contractor and its insurer agree to follow the following procedure to establish coverage and/or the amount of loss:

Any party to a loss may make written demand for an appraisal of the matter in disagreement. Within 20 days of receipt of written demand, the Contractor's insurer and either ORM or its commercial insurance company shall <u>each</u> select a competent and impartial appraiser and notify the other of the appraiser selected. The two appraisers shall select a competent and impartial umpire. The appraisers shall then identify the policy or policies under which the loss is

insured and, if necessary, state separately the value of the property and the amount of the loss that must be borne by each policy. If the two appraisers fail to agree, they shall submit their differences to the umpire. A written decision by any two shall determine the policy or policies and the amount of the loss. Each insurance company agrees that the decision of the appraisers and the umpire if involved shall be binding and final and that neither party will resort to litigation. Each of the two parties shall pay its chosen appraiser and bear the cost of the umpire equally.

11.3.1.4 All Coverages

11.3.1.4.1 All policies must be endorsed to require 30 days written notice of cancellation to the Agency. Ten-day written notice of cancellation is acceptable for non-payment of premium. Notifications shall comply with the standard cancellation provisions in the Contractor's policy. In addition, Contractor is required to notify Agency of policy cancellations or reductions in limits.

11.3.1.4.2 Neither the acceptance of the completed Work nor the payment thereof shall release the Contractor from the obligations of the insurance requirements or indemnification agreement.

11.3.1.4.3 The insurance companies issuing the policies shall have no recourse against the Owner for payment of premiums or for assessments under any form of the policies.

11.3.1.4.4 Any failure of the Contractor to comply with reporting provisions of the policy shall not affect coverage provided to the Owner, its officers, agents, employees and volunteers.

11.3.2 Acceptability of Insurers

All required insurance shall be provided by a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located. Insurance shall be placed with insurers with an A.M. Best's rating of **A-: VI or higher**. This rating requirement may be waived for Worker's compensation coverage only.

If at any time an insurer issuing any such policy does not meet the minimum A.M. Best rating, the Contractor shall obtain a policy with an insurer that meets the A.M. Best rating and shall submit another certificate of insurance within 30 days.

11.3.3 Verification of Coverage

Contractor shall furnish the Owner with Certificates of Insurance reflecting proof of required coverage. The Certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The Certificates are to be received and approved by the Owner before Work commences and upon any contract renewal or insurance policy renewal thereafter. The Certificate Holder must be listed as follows:

State of Louisiana
Name of Owner
Owner Address
City, State, Zip
Attn: Project # _____

The Owner reserves the right to request complete certified copies of all required insurance policies at any time.

Upon failure of the Contractor to furnish, deliver and maintain required insurance, this contract, at the election of the Agency, may be suspended, discontinued, or terminated. Failure of the Contractor to purchase and/or maintain any required insurance shall not relieve the Contractor from any liability or indemnification under the contract.

If the Contractor does not meet the insurance requirements at policy renewal, at the option of the Owner, payment to the Contractor may be withheld until the requirements have been met, OR the Owner may pay the renewal premium and withhold such payment from any monies due the Contractor, OR the contract may be suspended or terminated for cause.

11.3.4 Subcontractors

Contractor shall include all subcontractors as insureds under its policies OR shall be responsible for verifying and maintaining the certificates provided by each subcontractor. Subcontractors shall be subject to all of the requirements stated herein. The Owner reserves the right to request copies of subcontractor's certificates at any time.

If Contractor does not verify subcontractors' insurance as described above, Owner has the right to withhold payments to the Contractor until the requirements have been met.

11.3.5 Worker's Compensation Indemnity

In the event Contractor is not required to provide or elects not to provide Worker's compensation coverage, the parties hereby agree the Contractor, its Owners, agents and employees shall have no cause of action against, and shall not assert a claim against, the State of Louisiana, its departments, agencies, agents and employees as an employer, whether pursuant to the Louisiana Worker's Compensation Act or otherwise, under any circumstance. The parties also hereby agree that the State of Louisiana, its departments, agencies, agents and employees shall in no circumstance be, or considered as, the employer or statutory employer of Contractor, its Owners, agents and employees. The parties further agree that Contractor is a wholly independent Contractor and is exclusively responsible for its employees, Owners, and agents. Contractor hereby agrees to protect, defend, indemnify and hold the State of Louisiana, its departments, agencies, agents and employees harmless from any such assertion or claim that may arise from the performance of this contract.

11.3.6 Indemnification/Hold Harmless Agreement

Contractor agrees to protect, defend, indemnify, save, and hold harmless, the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers,

agents, servants, employees and volunteers, from and against any and all claims, damages, expenses and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur, or in any way grow out of, any act or omission of Contractor, its agents, servants and employees, or any and all costs, expenses and/or attorney fees incurred by Contractor as a result of any claims, demands, suits or causes of action, except those claims, demands, suits or causes of action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its officers, agents, servants, employees and volunteers.

Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands, suits or causes of action at its sole expense and agrees to bear all other costs and expenses related thereto, even if the claims, demands, suits, or causes of action are groundless, false or fraudulent. The State of Louisiana may, but is not required to, consult with the Contractor in the defense of claims, but this shall not affect the Contractor's responsibility for the handling and expenses of all claims.

11.4 PERFORMANCE AND PAYMENT BOND

11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

11.4.2 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.

11.4.3 Recordation of Contract and Bond [La R.S. 38:2241 thru 38:2241.1]

The Owner shall record within thirty (30) days the Contract Between Owner and Contractor and Performance and Payment Bond with the Clerk of Court in the Parish in which the Work is to be performed.

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.2 CORRECTION OF WORK

12.2.1 Before Substantial Completion

At the end of the paragraph, add the following sentences:
"If the Contractor fails to correct Work identified as defective within a thirty (30) day period, through no fault of the Designer, the Owner may hold the Contractor in default. If the Owner finds the Contractor in default, the Surety shall be notified. If within thirty (30) days after notification, the Surety has not corrected the nonconforming Work, through no fault of the Architect or Owner, the Owner may contract to have nonconforming Work corrected and hold the Surety and Contractor responsible for the cost, including architectural fees and other indirect costs. If the Surety fails to correct the Work within the stipulated time period and fails to meet its obligation to pay the costs,

the Owner may elect not to accept bonds submitted in the future by the Surety. Finding the Contractor in default shall constitute a reason for disqualification of the Contractor from bidding on future state contracts.

12.2.2 After Substantial Completion

12.2.2.1 At the end of the paragraph delete the last sentence and add the following sentences:
"If the Contractor fails to correct nonconforming Work, or Work covered by warranties, within a thirty (30) day period, through no fault of the Architect or Owner, the Owner may hold the Contractor in default. If the Owner finds the Contractor is in default, the Surety shall be notified. If within thirty (30) days after notification, the Surety has not corrected the non-conforming or warranty Work, through no fault of the Architect or Owner, the Owner may contract to have the nonconforming or warranty Work corrected and hold the Surety responsible for the cost including architects fees and other indirect costs. Corrections by the Owner shall be in accordance with Section 2.4. If the Surety fails to correct the nonconforming or warranty Work within the stipulated time period and fails to meet its obligation to pay the costs, the Owner may not accept bonds submitted, in the future, by the Surety."

ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

Delete all after the word "located".

13.2 SUCCESSORS AND ASSIGNS

13.2.1 In the second sentence, delete "Except as … 13.2.2"

Delete Section 13.2.2.

13.3 RIGHTS AND REMEDIES

Add the following Section 13.3.3:

13.3.3 The Nineteenth Judicial Court in and for the Parish of East Baton Rouge, State of Louisiana shall have sole jurisdiction and venue in any action brought under this contract.

13.4 TESTS AND INSPECTIONS

In Section 13.4.1, delete the second sentence and substitute the following:

The Contractor shall make arrangements for such tests, inspections and approvals with the Testing Laboratory provided by the Owner, and the Owner shall bear all related costs of tests, inspections and approvals.

Delete the last two sentences of Section 13.4.1.

13.5 INTEREST

Delete Section 13.5.

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

Delete Section 14.1.1.4.

In Section 14.1.3, after the word "profit," delete the words "on Work not executed" and substitute the following: "for Work completed prior to stoppage".

14.2 TERMINATION BY THE OWNER FOR CAUSE

Add the following Section:

14.2.1.5 failure to complete the punch list within the lien period as provided in 9.8.7.

14.2.3 Add the following sentence:

"Termination by the Owner shall not suspend assessment of liquidated damages against the Surety."

Add the following Section:

14.2.5 If an agreed sum of liquidated damages has been established, termination by the Owner under this Article shall not relieve the Contractor and/or Surety of his obligations under the liquidated damages provisions and the Contractor and/or Surety shall be liable to the Owner for per diem liquidated damages.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

In Section 14.4.3, delete all after "incurred by reason of the termination," and add "along with reasonable profit on the Work not executed."

ARTICLE 15

CLAIMS AND DISPUTES

15.1 CLAIMS

Delete Section 15.1.2, **Time Limit on Claims,** (See La R.S. 38:2189, and 38:2189.1).

15.1.3.1 Add the following to the end of the paragraph:
"A Reservation of Rights and similar stipulations shall not be recognized under this contract as having any effect. A party must make a claim as defined herein within the time limits provided."

15.1.4.2 In the first sentence of the Section, delete "Initial Decision Maker's" and replace with "Architect's". In the second sentence of the Section, delete "the decision of the Initial Decision Maker" and replace with: "his/her decision".

Delete Section 15.1.6.2 and substitute the following:

15.1.6.2 If adverse weather conditions are the basis for a claim for additional time, the Contractor shall document that weather conditions had an adverse effect on the scheduled construction. An increase in the contract time due to weather shall not be cause for an increase in the contract sum. At the end of each month, the Contractor shall make one Claim for any adverse weather days occurring within the month. The Claim must be accompanied by sufficient documentation evidencing the adverse days and the impact on construction. Failure to make such Claim within **twenty-one (21) days** from the last day of the month shall prohibit any future claims for adverse days for that month. No additional adverse weather days shall be granted after the original or extended contract completion date, except those adverse weather days associated with a National Weather Service named storm or federally declared weather related disaster directly affecting the project site.

Add the following Section:

15.1.6.3 The following are considered reasonably anticipated days of adverse weather on a monthly basis:

January	11 days	July	6 days
February	10 days	August	5 days
March	8 days	September	4 days
April	7 days	October	3 days
May	5 days	November	5 days
June	6 days	December	8 days

The Contractor shall ask for total adverse weather days. The Contractor's request shall be considered only for days over the allowable number of days stated above.

Note: Contract is on a calendar day basis.

15.2 INITIAL DECISION

15.2.1 In the second sentence, delete the word "will" and replace with: "shall always".

In the second sentence, delete the phrase: ", unless otherwise indicated in the Agreement."

In the third sentence, delete the word "mediation" and replace with: "litigation".

At the end of the third sentence, add: "arising prior to the date final payment is due".

Delete the fourth sentence.

15.2.5 In the middle of the first sentence, delete all after the phrase: "rejecting the Claim".

In the second sentence, delete the phrase: "and the Architect, if the Architect is not serving as the Initial Decision Maker,".

In the third sentence, delete all after: "binding on the parties" and add the following: "except that the Owner may reject the decision or suggest a compromise or both".

Delete Section 15.2.6.

Delete Section 15.2.6.1.

15.3 MEDIATION

Delete Section 15.3.

15.4 ARBITRATION

Delete Section 15.4.

STATE OF LOUISIANA

PARISH OF LINCOLN

This agreement made and entered into this _____ day of _____, by and between University of Louisiana at Monroe, Monroe, LA hereinafter called "OWNER" and _____ hereinafter called "CONTRACTOR".

Witnesseth: That for and in consideration of the payments and agreements hereinafter mentioned:

The CONTRACTOR will commence and complete the project described as Hemphill Hall Chiller Replacement, University of Louisiana at Monroe, Monroe, Louisiana.

The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor and other necessary services for the completion of the project named above and in keeping with the terms, conditions, plans and specifications of bid documents.

The CONTRACTOR shall agree to commence and fully complete the contract in a timely manner after receipt of NOTICE TO PROCEED (University purchase order) and in keeping with scope of project.

The CONTRACTOR agrees to perform all of the work described in the contract documents for the base proposal of $_____, as per the bid proposal submitted.

The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the contract documents.

Upon satisfactory completion of the work, the Contractor shall be paid an amount not to exceed ninety percent (90%) of the total contract amount. After the receipt of a clear lien certificate to be obtained by Contractor, the Contractor will be paid the retained portion less any deductions withheld under the provisions of the contract. The University reserves the right to cancel this agreement upon a thirty (30) day written notice should funds no longer be available due to budget reductions imposed by the State government.

Upon completion of this contract, or if terminated earlier, all records, reports, worksheets, or any other materials related to this contract shall become property of the State.

The Contractor shall not assign any interest in this agreement and shall not transfer any interest by assignment or novation without the prior written consent of the State, provided however, that claims for money due or to become due to the Contractor from the State may be assigned to a bank, trust company, or other financial institution without such prior written consent. Notice of any such assignment or transfer shall be furnished promptly to the State.

Any claims or controversies shall be resolved in accordance with the Louisiana Procurement Code, RS39:1524.26

It is hereby agreed that the Legislative Auditor of the State of Louisiana shall have the option of auditing all accounts of Contractor which relate to this contract.

This agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed or caused to be executed by their duly authorized official, this Agreement which shall be deemed an original on the date first above written.

UNIVERSITY OF LOUISIANA AT MONROE

_____	_____
Signature	Signature
_____	_____
Title	Title
_____	_____
Witness	Witness
_____	_____
Witness	Witness

STATE OF LOUISIANA

PARISH OF _____

ULM Hemphill Hall Chiller Replacement
University of Louisiana at Monroe
LOCATION: Monroe, Louisiana

NON COLLUSION AFFIDAVIT

Before me, the undersigned authority, duly commissioned and qualified within and for the State and Parish aforesaid, personally came and appeared_____representing _____ who, being by me first duly sworn deposed and said that he has read this affidavit and does hereby agree under oath to comply with all provisions herein as follows:

PART I.

Section 2224 of Part II of Chapter 10 of Title 38 of the Louisiana Revised Statutes, as amended.

(1) That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and

(2) That no part of the Contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the Contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for affiant.

PART II.

Section 2190 of Part I of Chapter 10 of Title 38 of the Louisiana Revised Statutes, as amended.

That affiant, if an architect or engineer, or representative thereof, does not own a substantial financial interest, either directly or indirectly, in any corporation, firm, partnership, or other organization which supplies materials for the construction of a public work when the architect or engineer has performed architectural or engineering services, either directly or indirectly, in connection with the public work for which the materials are being supplied.

For the purposes of this Section, a "substantial financial interest" shall exclude any interest in stock being traded on the American Stock Exchange or the New York Stock Exchange.

That affiant, if subject to the provisions of this section, does hereby agree to be subject to the penalties involved for the violation of this section.

_____

AFFIANT

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

_____

NOTARY

ULM Hemphill Hall
Chiller Replacement
University of Louisiana at Monroe
Monroe, LA **Bid Number 50006-072**
Name of Project **Project No.**

STATE OF _____

PARISH OF _____

ATTESTATIONS AFFIDAVIT

Before me, the undersigned notary public, duly commissioned and qualified in and for the parish and state aforesaid, personally came and appeared Affiant, who after being duly sworn, attested as follows:

LA. R.S. 38:2227 PAST CRIMINAL CONVICTIONS OF BIDDERS

A. No sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes:

(a) Public bribery (R.S. 14:118)
(b) Corrupt influencing (R.S. 14:120)
(c) Extortion (R.S. 14:66)
(d) Money laundering (R.S. 14:230)

B. Within the past five years from the project bid date, no sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes, during the solicitation or execution of a contract or bid awarded pursuant to the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statutes:

(a) Theft (R.S. 14:67)
(b) Identity Theft (R.S. 14:67.16)
(c) Theft of a business record (R.S.14:67.20)
(d) False accounting (R.S. 14:70)
(e) Issuing worthless checks (R.S. 14:71)
(f) Bank fraud (R.S. 14:71.1)
(g) Forgery (R.S. 14:72)
(h) Contractors; misapplication of payments (R.S. 14:202)
(i) Malfeasance in office (R.S. 14:134)

LA. R.S. 38:2212.10 Verification of Employees

A. At the time of bidding, Appearer is registered and participates in a status verification system to verify that all new hires in the state of Louisiana are legal citizens of the United States or are legal aliens.

B. If awarded the contract, Appearer shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.

C. If awarded the contract, Appearer shall require all subcontractors to submit to it a sworn affidavit verifying compliance with Paragraphs (A) and (B) of this Subsection.

ULM Hemphill Hall
Chiller Replacement
University of Louisiana at Monroe
Monroe, LA **Bid Number 50006-072**
Name of Project **Project No.**

LA. R.S. 23:1726(B) Certification Regarding Unpaid Workers Compensation Insurance

A. R.S. 23:1726 prohibits any entity against whom an assessment under Part X of Chapter 11 of Title 23 of the Louisiana Revised Statutes of 1950 (Alternative Collection Procedures & Assessments) is in effect, and whose right to appeal that assessment is exhausted, from submitting a bid or proposal for or obtaining any contract pursuant to Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950 and Chapters 16 and 17 of Title 39 of the Louisiana Revised Statutes of 1950.

B. By signing this bid /proposal, Affiant certifies that no such assessment is in effect against the bidding / proposing entity.

NAME OF BIDDER	**NAME OF AUTHORIZED SIGNATORY OF BIDDER**
DATE	**TITLE OF AUTHORIZED SIGNATORY OF BIDDER**

SIGNATURE OF AUTHORIZED
SIGNATORY OF BIDDER/AFFIANT

Sworn to and subscribed before me by Affiant on the _____ day of _____ , 20___ .

Notary Public

SCHEDULE OF VALUES

The Contractor is to use the following format. The total Contract Cost is to be itemized in each Subsection listed (as applicable)

DIVISION 01 – GENERAL REQUIREMENTS	QUANTITY	COST
01 00 00 GENERAL REQUIREMENTS		
	Total	
DIVISION 02 – SITE CONSTRUCTION		
02 07 00 SELECTIVE DEMOLITION		
	Total	
DIVISION 03 – CONCRETE		
03 10 00 CONCRETE FORMS		
03 20 00 CONCRETE REINFORCEMENT		
03 30 00 CAST-IN-PLACE		
	Total	
DIVISION 04 THROUGH 22 NOT USED		
DIVISION 23 – MECHANICAL		
23 01 00 BASIC MECHANICAL MATERIALS AND METHODS		
23 05 19 METERS AND GAUGES		
23 05 20 VALVES		
23 05 29 HANGERS AND SUPPORTS		
23 05 53 MECHANICAL IDENTIFICATION		
23 05 93 TESTING, ADJUSTING, AND BALANCING		
23 07 02 PIPE INSULATION		
23 07 16 EQUIPMENT INSULATION		
23 09 23 BUILDING MANAGEMENT AND CONTROL SYSTEM		
23 21 13 HYDRONIC PIPING		
23 21 23 HYDRONIC PUMPS		
23 25 00 HVAC WATER TREATMENT		
23 35 00 REFRIGERANT MONITORING & SAFETY EQUIPMENT		
23 64 26 WATER-COOLED ROTARY-SCREW WATER CHILLERS		
	Total	
DIVISION 24 THROUGH 25 – 28 NOT USED		

CHANGE ORDER

	ULM Hemphill Hall Chiller Replacement, University of Louisiana - Monroe		CHANGE ORDER No.
BID NUMBER:	50006-072	WBS No.	CONTRACT DATE:
CONTRACTOR:			CFMS / SRM No(s).
SITE CODE:		STATE ID:	NOTICE TO PROCEED DATE:

You are directed to make the following change(s) in this contract. Attach SUMMARY, BREAKDOWN and/or UNIT PRICE BREAKDOWN forms as required and give a brief description of the change(s) below.

The Original Contract Sum			
Total Changes by Previous Change Order(s)			
Current Contract Sum			
Contract Sum will be (increased) (decreased) (unchanged) by this Change Order			
New Contract Sum			
The Original Contract Completion Date and Contract Time.	Date:		DAYS
Total Time extended by Previous Change Order(s)			DAYS
Contract Time will be (increased) (decreased) (unchanged) by this Change Order			DAYS
New Contract Completion Date & Revised Contract Time	Date:		DAYS
Added Building Area			(Sq. Ft.)

NOTE ***: No additional increase in time or money will be considered for a Change Order item after it has been executed.***

RECOMMENDED	**ACCEPTED**	**APPROVED**
Designer's Name:	Contractor's Name:	Project Manager:
Address:	Address:	University of Louisiana Monroe
Email Address:	Email Address:	
By:	By:	By:
Date:	Date:	Date:

Construction Contract Change Order

Item No. _____

RFI No. (or COR, CPR, etc.) _____

BID NUMBER 50006-072 Date: _____

WBS No. _____

Project Name: ULM Hemphill Hall Chiller Replacement, University of Louisiana at Monroe

Contractor Name: _____

Description of Work: _____

General Contractor Direct Costs - Breakdown No. ____ _____

(See attached breakdown)

Total General Contractor Cost ____ % ☐

(General Contract Direct Cost plus OH&P) (Max: 8%)

Subcontractor Cost Breakdowns

(See attached.)

Subcontractor Name	Breakdown No.	A Total Direct Cost	B OH&P (Max 8%)	C Total A+(A X B)
			%	
			%	
			%	
			%	
			%	
			%	
			%	
			%	

Subcontractor Direct Costs Total $ -

(Sum column A)

Subcontractor Direct Costs + Subcontractor OH&P

(Sum column C)

General Contractor OH&P on Subcontractor Direct Cost at ____ % _____

(Sum column A times General Contractor OH&P rate.) (Max: 8%)

Total Subcontractor Costs ☐

(Subcontractor Direct Costs + OH&P + General Contractor OH&P)

☐

__%

unchanged by ☐

unchanged by ☐

(Attach supporting data such as meteorological reports)

Construction Contract Change Order

Breakdown No. _____
Item No. _____

BID NUMBER 50006-072 RFI No. (or COR, CPR, etc.) _____
WBS No. _____ Date: _____
Project Name: ULM Hemphill Hall Chiller Replacement, University of Louisiana at Monroe

Contractor/Subcontractor Name: _____

Direct Cost of Work :

A. Labor Check here if explained on the Comment Sheet ➧

			Hourly Wage Rate	Hours	Total Cost
1		☐			
2		☐			
3		☐			
4		☐			
5		☐			
6		☐			
7		☐			
			Add Labor Burden @	____ %	
			LABOR TOTAL		

B. Material

			Unit Price	Unit	Units	Total Cost
1		☐				
2		☐				
3		☐				
4		☐				
5		☐				
6		☐				
7		☐				
	(Copies of invoices may be required.)		Add Tax @		____ %	
			MATERIAL TOTAL			

C. Equipment

			Unit Rate	Unit	Units	Total Cost
1		☐				
2		☐				
3		☐				
4		☐				
5		☐				
6		☐				
7		☐				
	(Copies of invoices may be required.)		Add Tax @		____ %	

EQUIPMENT TOTAL

Construction Contract Change Order

Breakdown No. _____
Item No. _____
BID NUMBER 50006-072 RFI No. (or COR, CPR, etc.) _____
WBS No. _____ Date: _____
Project Name: ULM Hemphill Hall Chiller Replacement, University of Louisiana at Monroe

Contractor/Subcontractor Name: _____

A. Labor

No. (From BREAKDOWN Sheet)

B. Material

C. Equipment

Construction Contract Change Order

UNIT PRICE BREAKDOWN

Breakdown No. _____
Item No. _____
BID NUMBER 50006-072 RFI No. (or COR, CPR, etc.) _____
WBS No. _____ Date: _____
Project Name: ULM Hemphill Hall Chiller Replacement, University of Louisiana at Monroe

Contractor/Subcontractor Name: _____

Unit Price Tabulation

(Unit prices must be included in the bid or clearly defined in a standard, industry recognized pricing reference. The pricing reference shall be identified herein.)

Unit Price Description	Reference*	Unit Price	Units	Total

* Reference Legend: _____

Unit Price Total:
(Sum Total column)

Instructions for Change Order Back Up Forms

The General Conditions of the Contract for Construction, AIA Document A201, 2017 Edition, and the Supplementary Conditions provide for changes in the contract in the form of change orders. The costs of such changes must be carefully, clearly and accurately documented. University of Louisiana Monroe has prepared a set of forms to be used to provide this documentation in a consistent format that is in accordance with the Contract Documents.

Change orders will typically contain one or more items of work. Each item of work will typically include work by the general contractor and/or one or more subcontractors. The documentation begins with a breakdown of the work of the contractor and each subcontractor. This is prepared using the form entitled "BREAKDOWN." One form for the General Contractor and one for each subcontractor. Each breakdown will be summarized on the form entitled "SUMMARY." Each item of work will, in turn, be summarized on the change order itself. This should be on the face of the change order.

The forms are available as a Microsoft Excel worksheet for ease of preparation, with formulas established for mark-ups and other basic mathematical operations.

These forms are to be used as provided. Any alteration to the forms may cause the change order to be rejected.

GENERAL:

(Refer to Article 7 of the Supplementary and General Conditions)

Forms - There are five forms to be used for all University of Louisiana Monroe change orders: CHANGE ORDER form, SUMMARY, BREAKDOWN, BREAKDOWN COMMENT SHEET and UNIT PRICE BREAKDOWN. The CHANGE ORDER form is the highest level and is the official, signed document. A CHANGE ORDER form may include one or more items of work, each of which is backed up by a SUMMARY. Each SUMMARY will be backed up with one or more BREAKDOWNs. Any unusual rates, unit costs or quantities may be explained on the COMMENT SHEET. It's simple. The BREAKDOWN form must be used for the general contractor and any subcontractor, at any level, that is to get OH&P. Use as many as needed.

Unit Pricing - Labor, material and equipment breakdown is the standard method of pricing change orders for University of Louisiana Monroe. However, unit pricing may be considered in some circumstances if the unit prices are clearly established such as by unit prices that were included in the bid. These prices may also be derived from a construction industry standard reference such as R.S. Means. If unit prices were included in the bid they are acceptable for pricing change order work and, in fact, must be used for any work that is included in the change order for which they were established . The UNIT PRICE BREAKDOWN is provided for this purpose.

CHANGE ORDER:

Project identification information: Complete as required. The Site Code, State ID and CFMS / SRM No(s). (contract numbers) can be obtained from the FP&C Project Manager.

Description: This will include a list of each attached SUMMARY that makes up this change order and a brief statement of the work included in each.

New Contract Sum: Calculate the new contract amount using the original contract amount, previous change orders and the new change order. Select the appropriate word for increase, decrease or unchanged, and delete the terms that don't apply.

New Contract Completion Date and Revised Time: Calculate the new contract time using the original Contract Completion Date and Contract Time, previous changes in time and the change in time by this change order. Select the appropriate word for increase, decrease or unchanged and delete the terms that don't apply. Show days in the main column and the date in the blank indicated.

Added Building Area: Show any building area added by this change order. If none, enter "None."

RECOMMENDED: Show the Designer's name and address, sign on the line indicated as "By:" and date on the indicated line.

ACCEPTED: Show the Contractor's name and address, sign on the line indicated as "By:" and date on the indicated line.

APPROVED: For approval by FP&C.

SUMMARY:

(Refer to Article 7 of the Supplementary and General Conditions)

Item No.: Show the Item number as it will appear on the CHANGE ORDER Form. Note: This may be one of several items included in one CHANGE ORDER form.

RFI No.: Show the number of the request for information. This may be known by another name such as COR (Change Order Request,) CPR (Change Proposal Request,) etc.

Project No., WBS No., Date, Project Name. Complete as appropriate.

Contractor: Name of General Contractor.

Description of Work: Give a brief description of the work included in this **Item**.

General Contractor Direct Costs: Show the total General Contractor Cost from the BREAKDOWN and show the Breakdown No. in the space provided.

General Contractor Total Cost: Show the total General Contractor Cost plus the General Contractor's overhead and profit. The overhead and profit shall not exceed 8% of the Direct Cost.

Subcontractor Cost Breakdowns: List each subcontractor, Breakdown No. and Total Direct Cost (in column "A") from the attached BREAKDOWN sheets. Show the subcontractor's overhead and profit percentage in column "B" and show the calculated total of the direct cost plus the percentage of the direct cost in column "C." If the electronic version of the form is being used, column "C" will be automatically calculated. The overhead and profit shall not exceed 8% of the Total Direct Cost.

Subcontractor Direct Costs Total: Sum of column "A." This will be used to calculate the General Contractor's overhead and profit on the subcontractors' work. If the electronic version is being used, this will be an automatic calculation.

Subcontractor Direct Costs + Subcontractor OH&P: Sum of column "C." This represents the total amount that subcontractors will be paid. Automatic calculation.

General Contractor OH&P on Subcontractor Direct Cost at ___%. The contractors overhead and profit on the subcontractors' direct cost (without subcontractor OH&P.) Enter the percentage of the contractor's OH&P on the subcontractors' work (not to exceed 8%) and show the calculated total of the subcontractors' direct cost plus the percentage of the direct cost in the space. Automatic calculation.

Total Subcontractor Costs: Total of the last two spaces.

Change Order Subtotal: Total of change order except bond.

Performance and Payment Bond at ____%: Enter bond percentage (from amount provided by the contractor at the Pre-Construction Conference) and calculate the amount for the bond.

Amount will be (increased) (decreased) (unchanged) by: Add bond and calculate total change order amount. Indicate "increase," "decrease" or "unchanged", and **delete the terms that don't apply**.

Days will be (increased) (decreased) (unchanged) by: Show the number of days to be added or deleted from the contract, if any, due to changes in scope, adverse weather, unusual delays or other factors, **only** if it is proven the critical path is affected. Note that a change in scope does not necessarily indicate a change in time. Indicate "increased," "decreased" or "unchanged", and **delete the terms that don't apply**.

BREAKDOWN:

Item No. Show the Item number as it will appear on the CHANGE ORDER Form and the SUMMARY. Note: This may be one of several items included in one CHANGE ORDER form.

RFI No.: Show the number of the request for information. This may be known by another name such as COR (Change Order Request,) CPR (Change Proposal Request,) etc.

Project No., WBS No., Date, Project Name. Complete as appropriate.

Contractor: Name of General Contractor or Subcontractor.

Direct Cost of Work:

Check here if explained on the Comment Sheet: If rates, unit costs or quantities may appear unreasonable compared to standard costs or quantities the reasons may be explained on the attached comment sheet and the box checked to indicate that there is an explanation.

A. Labor: Include the "wages paid" hourly direct labor and/or foreman necessary to perform the required change. "Wages paid" is the amount actually paid the employee, not the fully burdened charge rate used in the bid, etc. Supervisory personnel in district or home office shall not be included. Do not include the project superintendent, except as permitted by Section 7.2 of Supplementary Conditions. Supervisory personnel on the job-site, but with broad supervisory responsibility shall not be included as Direct Labor, except as permitted by Section 7.2 of Supplementary Conditions. Typically there will be only one superintendent on the job and his/her time shall not be included, except as permitted by Section 7.2 of Supplementary Conditions. Typically all other employees are eligible for inclusion. List by job title each person employed on the work, his/her hourly rate, the number hours work and the extended Total Cost. Do not list crews unless the rates for them are readily available in standard cost estimating references such as R. S. Means. Add the labor burden that was provided at the Pre-Construction conference and in compliance with the Contract Documents, and total the amounts in LABOR TOTAL.

B. Material: Include the acquisition cost of all materials directly required to perform the required change. List each material used in the work, the price per unit, name of the unit, the number of units used and the extended Total Cost. Add the tax rate and tax and total the amounts in MATERIAL TOTAL.

C. Equipment: Include the rental cost of equipment items necessary to perform the change. For company-owned equipment items, include documentation of internal rental rates submitted at the pre-construction conference. Charges for small tools, and craft specific tools are not allowed. List each piece of equipment used in the work, the rate by units of time (hour, day, week, etc.,) number of units of time the piece was in service on the work and the extended total cost. Add the tax rate, calculate the tax and total the amounts in EQUIPMENT TOTAL.

TOTAL DIRECT COST FOR THIS BREAKDOWN: Total of A. Labor, B. Material and C. Equipment. This is the amount that will be carried forward to the SUMMARY Sheet. This amount does **NOT** include Overhead and Profit. This will be added on the SUMMARY Sheet.

COMMENTS SHEET:

The COMMENTS SHEET uses the same heading as the SUMMARY and BREAKDOWN.

The COMMENTS SHEET includes three sections, one each for A. Labor, B. Materials and C. Equipment. These correspond to the sections in the BREAKDOWN. Each comment should be entered in the section to which it corresponds on the BREAKDOWN and numbered to correspond to the appropriate line. Comments are to used only to explain unusual rates, costs or quantities.

UNIT PRICE BREAKDOWN:

The UNIT PRICE BREAKDOWN uses the same heading as the BREAKDOWN.

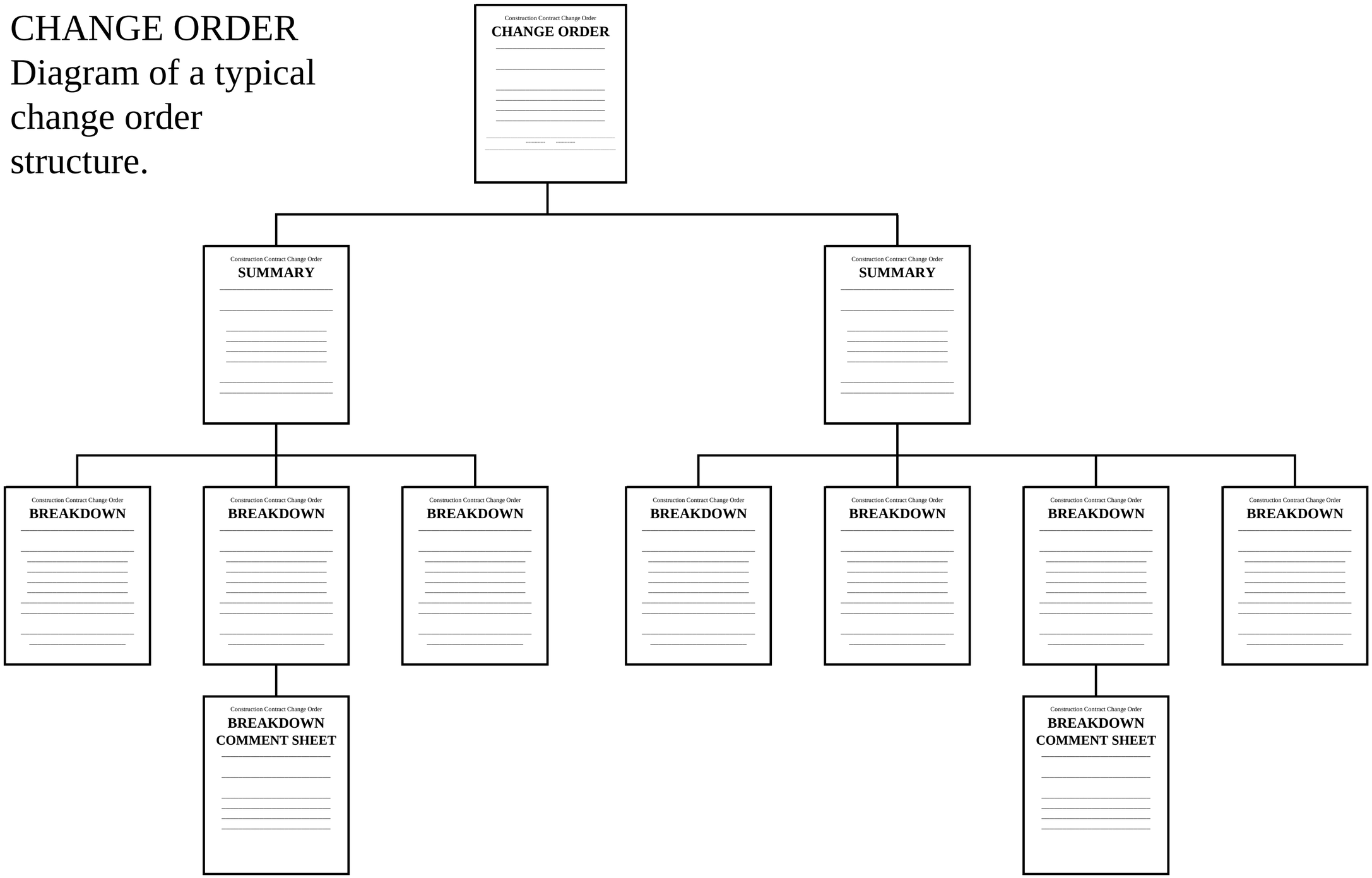
The UNIT PRICE BREAKDOWN is similar to the BREAKDOWN.

Unit Price Tabulation: Each unit price is listed along with its corresponding price and the number of units used in the work. The price and number of units are multiplied to provide the total cost of each unit price item. The pricing reference, such as the bid form for the project or a construction industry standard reference, must be cited for each unit price. This may be more fully described in "Reference Legend,"

Unit Price Total: Sum the unit prices to obtain the total cost for unit prices.

CHANGE ORDER

Diagram of a typical change order structure.



SECTION 01 01 00 - SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 PROJECT/WORK IDENTIFICATION

A. General: Project name is **"ULM Hemphill Hall Chiller Replacement; University of Louisiana at Monroe; Bid Number: 50006-072"** as shown on Contract Documents prepared by John J. Guth Associates, Inc. Drawings and Specifications are dated **April 17, 2025**.

B. Summary by References: Work of the contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, Specification Sections, Drawings, addenda and modifications to the Contract Documents issued as part of addenda subsequent to the initial printing of this Project Manual and including, but not necessarily limited to, printed material referenced by any of these. It is recognized that work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon, including weather conditions, and other forces outside the Contract Documents.

C. Abbreviated Written Summary: Briefly and without force and effect upon the Contract Documents, the work of the Contract can be summarized as follows:

1. The work includes the replacement of existing chiller, and pumps, piping, controls, and associated electrical.

D. Sequence of Work: Sequence work for minimum interruption of the Owner's operation. Cooling outages shall be limited to times when the outdoor temperature is less than 55 degrees F. Electrical outages must be approved by the Owner, including holidays, if necessary. **Scheduling chiller down-time must be minimized and scheduled with the University to reduce impact on University operations.**

E. Utility Interruptions: Utility interruptions shall be held to a minimum and will be permitted only at times approved by the local User Agency and by the State User Agency. Provide any required overtime work at no additional cost to the Owner.

F. Completion Date: As required by Instructions to Bidders, the Contractor is required to fully complete construction of project within specified number of days. Contractor shall furnish sufficient forces, construction plant and equipment, and work such hours, including weekend and night shifts as may be necessary to insure prosecution of work in accordance with schedule to the contracted completion date. If, in the opinion of the Engineer and Owner, Contractor falls behind progress schedule, Contractor shall take steps as may be necessary to improve his progress by such means as increasing number of men, number of shifts, days of work, and/or amount of construction plant, all without additional cost to Owner. If access to building is

required at other than normal building hours, Contractor shall make arrangements with User Agency.

1.3 CONTRACTOR USE OF PREMISES

A. General: The Contractor shall limit his use of the premises to the work indicated, so as to allow for Owner occupancy with minimum interruptions.

B. Use of the Site: Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction.

C. Keep existing driveways and entrances serving the premises clear and available to the Owner and his employees at all times. Do not use these areas for parking or storage of materials.

D. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas approved by User Agency. If additional storage is necessary, obtain and pay for such storage off-site. The Owner will not make payments for materials stored off-site.

E. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.

F. Use of existing toilets within the buildings by the Contractor and his personnel will not be permitted.

G. General Requirements: Observe no smoking rules. All personnel must wear shirts. No radios or similar items may be used.

1.4 OWNER OCCUPANCY

A. Full Owner Occupancy: The Owner will occupy the site during the entire period of construction. Cooperate fully with the Owner and his representative during construction operations to minimize conflicts and to facilitate Owner usage. Perform the work so as not to interfere with the Owner's operations.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION 01 01 00

SECTION 01 03 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF REQUIREMENTS

A. Definition: An alternate is an amount proposed by Bidders and stated on the Bid Form that will be added to Base Bid amount if the Owner decides to accept a corresponding change in either scope of work or in products, materials, equipment, systems, or installation methods described in Contract Documents.

B. Coordination: Coordinate related work and modify or adjust adjacent work as required to ensure that work affected by each accepted alternate is complete and fully integrated into the project.

C. Notification: Immediately following award of Contract, prepare and distribute to each party involved, notification of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for consideration at a later date. Include a complete description of negotiated modifications to alternates, if any.

D. Schedule: A "Schedule of Alternates" is included at the end of this section. Specification sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the work described under each alternate.

E. Include as part of each alternate, miscellaneous devices, appurtenances, and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Add all work as required to replace chiller CH-2.

B. Alternate No. 2: Add all work as required to replace chilled water pumps CWP-1 and CWP-2.

C. Alternate No. 3: Add all work as required to replace condenser water pumps cond. W P-3 and cond. W P-4.

END OF SECTION 01 03 00

SECTION 01 04 50 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for cutting and patching.

B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1. Requirements of this Section apply to mechanical and electrical installations. Refer to Division 26 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

C. Demolition of selected portions of the building for alterations is included in Division 02 Section 020700, "Selective Demolition."

1.3 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.

1. Bearing wall.
2. Structural steel.
3. Lintels.
4. Miscellaneous structural metals.
5. Exterior curtain wall construction.
6. Piping, ductwork, vessels and equipment.

B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:

a. Shoring, bracing, and sheeting.
b. Primary operational systems and equipment.
c. Air or smoke barriers.
d. Water, moisture, or vapor barriers.
e. Membranes and flashings.
f. Fire protection systems.

g. Control systems.
h. Communication systems.
i. Electrical wiring systems.

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace work cut and patched in a visually unsatisfactory manner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials. Obtain approval from the Architect prior to replacement.

PART 3 - EXECUTION

3.1 INSPECTION

A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

1. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of work to be cut.

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

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Take all precautions necessary to avoid cutting existing pipe, conduit, or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.3 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original Installer; comply with the original Installer's recommendations.

1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
4. Comply with requirements of applicable Sections of Division 2 where cutting and patching requires excavating and backfilling.
5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.

    a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken containing the patch, after the patched area has received primer and second coat. Extend new painting from corner to corner of a room or area. Consult Architect if this situation occurs in this project.

4. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.4 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01 04 50

SECTION 01 09 00 - DEFINITIONS AND STANDARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF REQUIREMENTS

A. General: This section specifies procedural and administrative requirements for compliance with governing regulations and codes and standards imposed upon the work. These requirements include obtaining permits, licenses, inspections, releases, and similar documentation, as well as payments, statements, and similar requirements associated with regulations, codes, and standards.

B. The term "Regulations" is defined to include laws, statutes, ordinances, and lawful orders issued by governing authorities, as well as those rules, conventions, and agreements within the construction industry which effectively control the performance of the work regardless of whether they are lawfully imposed by governing authority or not.

1.3 DEFINITIONS

A. General Explanation: Certain terms used in Contract Documents are defined in this Article. Definitions and explanations contained in this Section are not necessarily complete, but are general for the work to extent that they are not stated more explicitly in another element of the Contract Documents.

B. General Requirements: Provisions and requirements of other Division 1 Sections apply to the entire work of the Contract and, where so indicated, to other elements which are included in the project.

C. Indicated: The term "indicated" is a cross-reference to graphic representations, notes, or Schedules on the Drawings, to other paragraphs or Schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for the purpose of helping the reader locate the cross-reference, and no limitation of location is intended except as specifically noted.

D. Directed, Requested, Etc.: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by the Architect," "requested by the Architect," and similar phrases. However, no such implied meaning will be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.

E. Approve: Where used in conjunction with the Architect's response to submittals, requests, applications, inquiries, reports, and claims by the Contractor, the term "approved" will be held to limitations of the Architect's responsibilities and duties as specified in General and

Supplementary Conditions. In no case will the Architect's approval be interpreted as a release of the Contractor from responsibilities to fulfill requirements of Contract Documents or acceptance of the work, unless otherwise provided by requirements of the Contract Documents.

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

G. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations."

H. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimensions, finishing, curing, protecting, cleaning, and similar operations."

I. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."

J. Installer: The "Installer" is "the entity" (person or firm) engaged by the Contractor, its Subcontractor, or Sub-Subcontractor for performance of a particular element of construction at the project site, including installation, erection, application, and similar required operations. It is a requirement that installers are experienced in the operations they are engaged to perform.

K. Testing Laboratory: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests of the work, either at the project site or elsewhere, and to report and (if required) interpret results of those inspections or tests.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Except where more explicit or stringent requirements are written into the Contract Documents, applicable construction standards have the same force and effect as if bound into or copied directly into the Contract Documents. Such industry standards are made a part of the Contract Documents by reference. Individual specification sections indicate which codes and standards the Contractor must keep available at the project site for reference.

B. Referenced standards (standards referenced directly in the Contract Documents) take precedence over standards that are not referenced but generally recognized in the industry for applicability to the work.

C. Unreferenced Standards: Except as otherwise limited by the Contract Documents, standards not referenced but recognized in the construction industry as having direct applicability will be enforced for performance of the work. The decision as to whether an industry code or standard is applicable, or as to which of several standards are applicable, is the sole responsibility of the Architect.

D. Publication Dates: Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of Contract Documents.

E. Conflicting Requirements: Where compliance with two or more standards is specified, and where these standards establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents specifically indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Architect for a decision before proceeding.

F. Minimum Quantities or Quality Levels: In every instance, the quantity or quality level shown or specified is intended to be the minimum to be provided or performed. Unless otherwise indicated, the actual work may either comply exactly, within specified tolerances, with the minimum quantity or quality specified, or may exceed that minimum within reasonable limits. In complying with these requirements, the indicated numeric values are minimum or maximum values, as noted, or as appropriate for the context of the requirements. Refer instances of uncertainty to the Architect for decision before proceeding.

G. Copies of Standards: The Contract Documents require that each entity performing work be experienced in that part of the work being performed. Each entity is also required to be familiar with industry standards applicable to that part of the work. Copies of applicable standards are not bound with the Contract Documents.

H. Where copies of standards are needed for proper performance of the work, the Contractor is required to obtain such copies directly from the publication source.

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

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

1.5 SUBMITTALS

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

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 09 00

SECTION 01 20 00 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 RELATED SECTIONS

A. Construction Schedule: Division 1 Section 013000, "Submittals."

1.3 PRE-CONSTRUCTION MEETING

A. After notification that the contract has been executed, the Engineer shall arrange with the Owner, User Agency, and Contractor, and conduct a pre-construction conference to be held at the project site. The Contractor shall be responsible to see that his subcontractors are in attendance, and shall furnish the following to the Architect, Owner, and User Agency:

1. Schedule of values (Division 01 Section 013000, "Submittals").
2. List of Subcontractors and major material suppliers (Division 01 Section 013000, "Submittals").
3. Construction Schedule (Division 01 Section 013000, "Submittals").

B. The following shall serve as a minimum agenda:

1. Distribute and discuss the list of major subcontractors.
2. Tentative construction schedule.
3. Critical work sequencing.
4. Use of premises.
5. Relation and coordination of major subcontractors.
6. Designation of responsible personnel.
7. Processing of field decisions and change orders.
8. Submittal of Shop Drawings, project data, and samples.
9. Procedures for maintaining record documents.
10. Safety and first-aid procedures.

1.4 PROGRESS MEETINGS

A. Engineer shall schedule and administer monthly progress meetings during the construction period. Construction schedule should be revised for every progress meeting. Required attendance shall be:

1. Architect and his professional consultants, as needed.
2. Contractor.
3. Subcontractors, as appropriate.

4. Suppliers, as appropriate.

B. The Owner shall be notified of such meetings and may be represented. It shall be the principal purpose of these meetings or conferences to effect coordination, cooperation, and assistance in every practical way to the end of maintaining progress of the project on schedule and completing the project within the contract time.

C. Suggested Agenda:

1. Review work progress since last meeting.
2. Note field observations, problems, and decisions.
3. Review off-site fabrication problems.
4. Revise construction schedule, as indicated.
5. Review submittal schedules, expedite as required to maintain schedule.
6. Review changes proposed by Owner for effect on construction schedule and effect on completion date.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION 01 20 00

SECTION 01 30 00 - SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Additional Submittal Requirements: Division 0 Section 007000, "General Conditions."

B. Closeout Submittals: Division 1 Section 017000 "Project Closeout."

1.3 CONSTRUCTION SCHEDULE

A. General: As required by Article 3.10 of the General Conditions, Contractor shall, within ten days after signing the Contract, prepare and submit to Architect for information purposes, a practical schedule showing order in which Contractor proposes to carry on work. Extend schedule from date established for the notice to proceed to date of Substantial Completion. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Form of Schedule: Provide in form of horizontal bar chart. Provide separate horizontal bar column for each trade or operation. Order shall be Table of Contents from Project Manual or the chronological order of beginning of each item of work. Submit three copies to Architect.

C. Content of Schedule: Provide complete sequence of construction activity, dates for beginning, and completion of each element of construction. Identify work of separate phases or other logically grouped activities. Show projected percentage of completion for each item of work as of first day of each month.

1.4 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. Shop Drawings:

1. Submit prints of Original Drawings prepared by Contractor, Subcontractor, Supplier, or Distributor which illustrate same portion of work; showing fabrication, layout setting, or erection details.
2. Minor corrections needed on prints will be made by Architect; for extensive modifications, prints may be returned to Contractor for correction. When reviewed, Architect will retain two copies for record and return remaining copies to General Contractor for distribution. Reproducible copies of Shop Drawings will not be reviewed.

B. Product Data:

1. Manufacturer's Standard Drawings: Modify Drawings to delete information which is not applicable to project. Supplement standard information to provide additional information applicable to project.

2. Manufacturer's Catalog Sheet, Brochures, Diagrams: Clearly mark each copy to identify pertinent materials, product, or models. Show dimensions and clearances required. Show performance characteristics and capacities.

C. Samples:

1. Physical examples to illustrate materials, equipment, or workmanship to establish standards by which completed work is judged.
2. Office samples shall be of sufficient size and quantity to clearly illustrate functional characteristics of product or material and full range of color and texture samples.

D. General Submission Requirements:

1. Quantities: Submit the number of copies of product data and Shop Drawings that the Contractor requires for distribution, plus two copies which will be retained by the Architect. Quantity of samples required shall be as specified in specification section for respective product.

E. Submittals shall include:

1. Project title.
2. Names of Contractor, Subcontractor, Supplier, Manufacturer.
3. Identification of Product.
4. Relation to adjacent structure or materials.
5. Field dimensions.
6. Reference to Architect's drawing numbers, Specification Section, room numbers, structural framing marks, and/or numbers.
7. Applicable standards: e.g., ASTM.
8. Blank space for Architect 's stamp.
9. Identification of deviations from Contract Documents.
10. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements, and compliance with Contract Documents.

F. These requirements are in addition to those in Article 3.12 of General Conditions.

1.5 SCHEDULE OF VALUES

A. General: As required by Article 9.2 of General Conditions, submit to Architect a Schedule of Values at least ten days prior to submitting first Application for Payment. Upon request by Engineer, support values with data that will substantiate their correctness. Use Schedule of Values only as basis for Contractor's Application for Payment. Itemize separate line item cost for work required by each section of this Specification.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 30 00

SECTION 01 50 00 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 TEMPORARY UTILITIES

A. Temporary Services: Contractor shall arrange and pay for all hook-ups, meters for all temporary utility services for construction, and, as necessary, for the proper and expeditious prosecution of the work. The Contractor shall provide piping, conduit, etc., and make all connections to existing services and sources of supply, and pay all charges for same. The Contractor shall pay for all utilities usage during the time of construction directly to the utility company. Contractor shall provide all labor, materials, equipment, and appliances necessary for the complete installation, operation, and maintenance of all temporary service systems and facilities. Contractor shall remove all such temporary installations and connections when no longer required, or when directed.

B. Electric power used in existing buildings for operating tools and testing of equipment will be furnished by the User Agency at no charge, but the Contractor shall provide any required temporary facilities and remove same when no longer required.

1.3 BARRICADES, LIGHTS, AND WATCHMEN

A. Where the work is constructed in or adjacent to any road, parking area, or public place, the Contractor shall, at his own cost and expense, furnish and erect such barricades, lights, and danger signals, shall provide such watchmen, and take such other precautionary measures for the protection of persons and property and of the work, as are necessary. At the completion of construction, all barricades and all traces thereof, shall be removed, holes filled, paving repaired, etc.

1.4 STORAGE OF MATERIALS

A. Contractor shall provide, on the premises where directed, suitable storage sheds (substantial and watertight) in which he shall store all materials subject to damage by weather. All storage sheds shall be of sufficient size to hold all materials required on the site at one time, and shall have floors raised at least 6 inches above the ground on heavy joists or sleepers. Storage sheds shall have neat appearance.

B. Major subcontractors shall provide such temporary buildings as, in the opinion of the Architect, may be necessary to fully protect their materials, equipment, apparatus, etc., during the progress of the work. Such buildings shall have neat appearance.

C. Building materials, Contractor's equipment, etc., shall be stored on the premises in a manner so that it may be observed at any time by the Architect.

D. All materials affected by the weather shall be covered and protected and kept free from damage while being transported to the site.

E. Subcontractors desiring to store materials scheduled for immediate use in the building may do so only in locations as directed by the General Contractor and approved by the Architect.

1.5 SANITARY FACILITIES

A. Provide single-occupant, self-contained toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar non-absorbent material. Contractor shall keep such place in sanitary condition and remove at completion of contract. Facility fixtures shall not be used by workmen. Comply with all applicable codes, utility, and safety regulations.

1.6 LAYING-OUT OF WORK

A. Contractor shall compare all Drawings and verify all dimensions, and shall take any and all measurements necessary to verify the drawing dimensions in relation to conditions already established at the job site before laying out the work. Contractor will be held responsible for subsequent errors which could have been avoided by such checking.

B. Any discrepancy which will affect the proper layout of the work shall be immediately called to the attention of the Architect by the Contractor. No work shall proceed until such discrepancy has been rectified as directed by the Architect.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 50 00

SECTION 016000 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The general provisions of the Contract, including General and Supplementary Conditions, apply to the work specified in this Section. Refer to other Division 1 Sections for additional requirements which may affect the work of this Section.

1.2 RELATED REQUIREMENTS

A. Warranty: General Conditions, 3.5.

B. Substitutions: Division 00 Section 002113, "Instruction to Bidders."

1.3 GENERAL PRODUCT REQUIREMENTS

A. Provide products, materials, and equipment which comply with the requirements and which are undamaged and unused at the time of installation, and which are complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and for the intended use and effect. Do not use material or equipment for any purpose other than that for which it is designed or specified.

1.4 MANUFACTURER'S INSTRUCTIONS

A. When Contract Documents require that installation of work shall comply with Manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to Architect. Maintain one set of complete instructions at the job site during installation and until completion.

B. Handle, install, connect, clean, condition, and adjust product in strict accord with such instructions and in conformity with specified requirements. Should job conditions or specified requirements conflict with Manufacturer's instructions, consult with Architect for further instructions. Do not proceed with work without clear instructions.

C. Perform work in accord with Manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.5 TRANSPORTATION AND HANDLING

A. Arrange deliveries of products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site. Deliver products in undamaged condition, in Manufacturer's original containers or packaging, with identifying labels intact and legible. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.

B. Provide equipment and personnel to handle products by method to prevent soiling or damage to products or packaging.

1.6 STORAGE AND PROTECTION

A. Store products in accord with Manufacturer's instructions, with seals and labels intact and legible. Store products subject to damage by the elements in weathertight enclosures. Maintain temperature and humidity within the ranges required by Manufacturer's instructions.

B. Exterior Storage: Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.

C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.

D. Protection After Installation: Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 016000

SECTION 017000 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF REQUIREMENTS

A. Definitions: Project closeout is the term used to describe certain collective project requirements, indicating completion of the work that is to be fulfilled near the end of the contract time in preparation for final acceptance and occupancy of the work by the Owner, as well as final payment to the Contractor and the normal termination of the Contract.

B. Specific requirements for individual units of work are included in the appropriate Sections in Division 02 through 26.

1.3 CLOSEOUT SUBMITTALS

A. Submit to Architect for review, four copies each of the following items and other items as specified. Approved copies will be transmitted to Owner by Architect.

B. Operation and Maintenance Data: Refer to Article titled "Operation and Maintenance Manuals" hereinafter this Section.

C. Record Drawings: Refer to "Record Drawings" article hereinafter this Section (one copy required).

D. Release of Liens: AIA Form G706A, refer to Article 9.10 of the General Conditions.

E. Consent of Surety to Final Payment: AIA Form G707, refer to Article 9.10 of General Conditions.

1.4 OPERATION AND MAINTENANCE MANUALS

A. Purpose: Operation and maintenance manuals will be used for training of, and use by, the Owner and his employees in the operation and maintenance of the systems and related equipment as specified below. A separate manual or chapter shall be prepared for instructions of each class of equipment or system.

B. Contents: Manuals shall contain the following information on each item of equipment:

1. Routine maintenance operations
2. Complete operating instructions
3. Service instructions

4. Complete control wiring
5. Emergency procedure
6. Equipment warranties or guarantees

C. Preparation: The manuals shall be prepared to provide for the optimum operation and maintenance of the various systems outlined above and equipment forming a part of these systems. Manufacturer's literature and data shall be that of the actual equipment installed under contract for the particular facility. Each manual containing the systems noted shall be bound in one or more volumes as required for convenience in handling.

1.5 INSTRUCTIONS

A. Instruct Owner's personnel in operation of all systems, mechanical, electrical, and other equipment in accordance with respective Specification Sections and Manufacturer's instructions.

1.6 RECORD DRAWINGS

A. Mark-Up Procedure: During progress of work, maintain a white-print set of Contract Drawings and Shop Drawings, with mark-up of actual installations which vary substantially from the work as originally shown. Mark whatever Drawing is most capable of showing actual physical condition, fully and accurately. Where Shop Drawings are marked up, cross-reference on contract drawings at corresponding location. Mark with erasable colored pencil, using separate colors where feasible to distinguish between changes for different categories of work at same general location. Mark-up important additional information which was either shown schematically or omitted from Original Drawings. Give particular attention to information on work concealed, which would be difficult to identify or measure and record at a later date. Note alternate numbers, change order numbers, and similar identification.

B. Submittal: At the conclusion of the Contract, the final set of record prints shall be prepared by the Architect from information obtained from the Contractor.

1.7 CLEANING UP

A. No rubbish shall be allowed to accumulate or be allowed to remain on the premises or job site beyond a reasonable length of time. Trash shall be removed from within the building and from the site daily. Particular attention shall be given to these requirements.

B. All rubbish shall be removed by means of chutes, hoists, or receptacles. Under no circumstances shall any rubbish or waste be dropped or thrown from one level to another within or outside the buildings. Immediately after unpacking materials, all packing case lumber and other packing materials, excelsior, wrappings, and other like flammable wastes shall be collected and removed from the buildings and premises. Burning of trash on the site will not be permitted.

C. Care shall be taken by all workmen not to mark, soil, or otherwise deface any finishes. In the event that any finishes become defaced in any way by mechanics or workmen, the Contractor or any of his sub-contractors shall clean and restore such surfaces to their original condition.

D. Each subcontractor engaged upon the work shall bear his full responsibility for leaving all work in a clean and proper condition, satisfactory to the Owner and the Architect.

E. Final Cleaning: Beside the general broom cleaning, the following cleaning shall be done just before final acceptance of the work:

1. Remove all labels not intended for permanent installation.
2. Remove all marks, stains, fingerprints, and other soil or dirt from all painted work, and clean as required to leave in first class condition.
3. Clean all equipment removing all stains, paint, dirt, and dust.

F. Upon completion of the work, the Contractor will be required to thoroughly clean the building site and surrounding ground, and all trash and rubbish left by him in the course of construction of the work shall be removed and disposed of off the site of work.

G. Contractor shall haul off all debris from the site to legal disposal areas and dispose of all debris and excess materials resulting from project work. No burning of material or debris shall be done at site. In hauling material from the site, it shall be the responsibility of the Contractor to prevent debris from dropping from vehicles and littering the site and any public thoroughfare.

1.8 SUBSTANTIAL COMPLETION

A. Inspection and other procedures for Contractor to follow to process Contract through Substantial Completion are specified in General and Supplementary Conditions, Articles 9.8 and 9.9.

1.9 FINAL INSPECTION

A. Contractor shall submit written certification that:

1. Contract Documents have been reviewed.
2. Project has been inspected for compliance with Contract Documents.
3. Work has been completed in accordance with Contract Documents.
4. Equipment and systems have been tested in presence of Owner's Representative and are operational.
5. Project is completed, and ready for final inspection.

B. Engineer will make final inspection after receipt of certification.

C. Should Architect consider that work is not finally complete, he will notify Contractor, in writing, stating reasons. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Architect certifying that work is complete. Architect will reinspect work.

1.10 FINAL PAYMENT

A. Application for final payment shall be submitted together with documents specified in General and Supplementary Conditions, Article 9.10 "Final Completion and Final Payment".

1.11 ELEVATION CERTIFICATE

A. Provide Elevation Certificate in accordance with FEMA instructions included at the end of this section signed by Surveyor registered in the State of Louisiana.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 017000

SECTION 020700 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Extent of selective demolition work is indicated on Drawings.

1.2 LAWS, ORDINANCES, REGULATIONS

A. Comply with regulations and requirements of authority having jurisdiction over these operations.

B. Hazardous Materials: Only persons or firms duly licensed to handle hazardous materials shall do so. Hazardous materials shall be removed and disposed of in accordance with all applicable laws, ordinances and regulations.

1.3 SCHEDULE

A. Schedule: Submit schedule indicating proposed methods and sequence of operations for selective demolition work to Architect for review prior to commencement of work. Include coordination for shut-off, capping, and continuation of utility services as required, together with details for dust and noise control protection.

B. Coordinate with Owner's continuing occupation of portions of existing building. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.

C. Owner shall have the right to salvage. Material and/or equipment to be salvaged by Owner shall be indicated as such.

1.4 JOB CONDITIONS

A. Condition of Structures: Owner assumes no responsibility for actual condition of materials, equipment or structures to be demolished.

B. Conditions existing at the time of commencement of contract will be maintained by Owner insofar as practicable. However, variations may occur due to Owner's salvage operations prior to start of selective demolition work.

C. Environmental Controls: Use temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding and pollution.

D. Occupancy: Owner will be continuously occupying areas of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will

minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities which will severely impact Owner's normal operations.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Utilize such approved materials and equipment as required and necessary to accomplish the work.

PART 3 - EXECUTION

3.1 INSPECTION

A. Prior to commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing conditions to structure surfaces, equipment or to surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Architect prior to starting work.

3.2 PROTECTIONS

A. Protections:

1. Provide temporary barricades, and partitions and other forms of protection as required to protect Owner's personnel and general public from injury due to selective demolition work.
2. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to and from occupied portions of building.
3. Erect temporary covered passageways as required by the Owner or authorities having jurisdiction.
4. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished, and adjacent facilities or work to remain.
5. Protect floors with suitable coverings when necessary.
6. Construct temporary insulated solid dust proof partitions where required separating areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dust proof doors and security locks, if required.
7. Remove protections at completion of work.
8. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

B. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.

3.3 DEMOLITION

A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

B. Contractor shall coordinate demolition operations so as to prevent damage to materials and/or equipment to be salvaged.

C. Cut concrete and masonry at junctures with construction to remain using power driven masonry saw or hand tools; do not use power-driven impact tools.

D. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.

E. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.

F. Cease operations and notify the Architect immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

G. Utility Services:

1. Maintain existing utilities indicated to remain. Keep in service and protect against damage during demolition operations.
2. Do not interrupt existing utilities serving occupied or used facilities, except when authorized, in writing, by authorities having jurisdiction. Provide temporary services such as emergency power, fire alarm, heating, medical gas, air conditioning, during interruptions to existing utilities, as acceptable to Owner and governing authorities. Allow no interruption in service unless coordinated with Owner at least 24 hours in advance.
3. Disconnect and seal utilities serving each structure to be demolished and interior area to be demolished, prior to start of demolished work.
4. Locate, identify, stub off and disconnect utility services that are not indicated to remain.
5. Provide by-pass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum 24 hour advance notice to Owner if shut-down of service is necessary during change-over.

H. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Architect in written, accurate detail. Pending receipt of directive from Architect, rearrange selective demolition schedule as necessary to continue overall job progress without delay.

I. Explosives: Use of explosives will not be permitted.

J. Storage or sale of removed items on site will not be permitted.

3.4 HAZARDOUS MATERIALS

A. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.

3.5 CLEAN - UP AND REPAIR

A. Upon completion of demolition work, remove tools, equipment, demolished materials and other materials resulting from demolition operations from site. Leave interior areas broom clean.

B. Promptly repair adjacent construction or surfaces soiled or damaged by demolition work at no cost to Owner. Repair demolition performed in excess of that required at no cost to Owner. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work.

3.6 DISPOSITION OF SALVAGE MATERIALS AND EQUIPMENT

A. Carefully remove materials and/or equipment to be salvaged. All materials and/or equipment selected to remain the property of the Owner shall be removed and delivered to a location as designated by the Owner. Owner shall confirm receipt in writing.

B. Material and/or equipment not retained by the Owner shall become the property of the Contractor and shall be removed from the site by him.

END OF SECTION 020700

SECTION 03 10 00 - CONCRETE FORMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 RELATED SECTIONS

A. Division 3 Section 03 20 00, "Concrete Reinforcement."

B. Division 3 Section 03 30 00, "Cast-in-Place Concrete."

1.3 SYSTEM DESCRIPTION

A. Design Requirements: Unless otherwise shown or specified, design, construct, erect, maintain, and remove forms and related structures for cast-in-place concrete work in compliance with American Concrete Institute Standard ACI 347 "Recommended Practice for Concrete Formwork."

PART 2 - PRODUCTS

2.1 FORMS FOR EXPOSED FINISH CONCRETE

A. Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

B. Use overlaid plywood complying with DOC PS-1 "A-C or B-B High Density Overlaid Concrete Form," Class I.

2.2 FORMS FOR UNEXPOSED FINISH CONCRETE

A. Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

2.3 FORM TIES

A. Provide factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete surfaces upon removal. Portion of ties remaining after form is removed shall be l inch from outer edge of concrete, within concrete. Form ties fabricated on Project site and wire ties are not acceptable.

2.4 FORMS COATINGS

A. Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds with a maximum VOC of 350 mg/l.

2.5 CORNER FORMERS AND REVEAL STRIPS.

A. Shall be extruded PVC or rigid Geon vinyl shapes or other material as approved by Engineer. Shapes shall be fabricated to conformations as indicated and shall be of types that will prevent leakage at form face or shall be provided with suitable approved gaskets to prevent leakage.

PART 3 - EXECUTION

3.1 FABRICATION OF FORMWORK

A. Structural Responsibility: Contractor shall be solely responsible for the structural adequacy of the forms, ties, shoring, and bracing. Requirements given herein are minimum for appearance purposes only, not to be considered as structural design. Contractor shall verify dimensions of new chiller and pump room prior to dimensioning forms.

B. General Design: Make sufficiently tight to prevent leakage of mortar. Properly brace and tie forms together so as to maintain position and shapes. Forms shall withstand the concrete pressures and weight without deformation beyond 1/360 of spans. Except in unfinished locations, use the form tops or a continuous wood strip to establish accurate top edges for beams, slabs, and construction joints.

C. Chamfers: 3/4 inch on exposed corners except where shown otherwise.

D. Tolerances: Exposed concrete shall be visually plumb, level, straight, and smooth when viewed at a distance of 30 feet, except for irregularities that will be removed in the finishing process. Maximum deviation shall not be over 1/4 inch in 8 feet – 0 inches for exposed surfaces and 1/2 inch in 8 feet – 0 inches for concealed or covered surfaces.

3.2 COORDINATION

A. Coordinate work of this Section with related work of other Sections as necessary to obtain a proper installation of all embedded items. Items furnished by other Sections for installation into the work of this Section shall be installed in accordance with requirements of other Sections.

Provide framing and formwork for all openings and chases for mechanical, plumbing and electrical ducts, pipes, and conduits. Provide for installation of bolts, anchors, sleeves, reglets, anchor studs, inserts, framing members, and similar items. Examine all architectural, structural, mechanical, and electrical Drawings for requirements to accommodate the work of other Sections.

3.3 FORM CONSTRUCTION

A. Form strips shall be installed straight and true as required to produce reveals, reglets, drip grooves, and similar details as indicated. Strips shall be beveled as indicated for easy removal and to prevent breaking of concrete corners.

B. Beveled construction keys shall be formed at all joint locations shown on the Drawings and at locations as approved when it is necessary to stop pours where no joint is shown. Set beveled pouring strips at joints which will be exposed in the finish. Remove strips before placing next lift. Tighten all forms to compensate for shrinkage at joints before pouring new concrete against previously poured concrete.

C. Temporary openings shall be provided at the base of all wall and column forms and at all other locations where necessary to facilitate cleaning and inspection prior to placing concrete. Locations of openings in exposed cast-in-place concrete shall be subject to approval.

D. Anchoring devices (such as anchor slots, inserts, bolts, fastening devices, reglets, etc.) necessary for attachment of various materials to concrete shall be installed in the forms as required and/or necessary to properly complete the indicated construction. Consult and cooperate with other Sections and trades to insure properly located anchoring devices, whether specified to be installed under this Section or under other Sections of the Specifications.

E. Install wood boxes and block-outs as necessary to form openings through concrete and cooperate with other trades that are required to set sleeves, etc., in forms.

3.4 FORM REMOVAL

A. Formwork not supporting concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees F for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operation, and provided that curing and protection operations are maintained.

B. Formwork, supporting weight of concrete, such as beams, joists, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.

C. Form facing material may be removed four days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

END OF SECTION 03 10 00

SECTION 03 20 00 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 RELATED SECTIONS

A. Division 3 Section 03 10 00, "Concrete Forms."

B. Division 3 Section 03 30 00, "Cast-in-Place Concrete."

1.3 PERFORMANCE REQUIREMENTS

A. Comply with applicable requirements of the following standards, except as herein modified:

1. ACI "Manual of Standard Practice for Detailing Reinforced Concrete Structures" ACI 315, latest edition.
2. ACI "Building Code Requirements for Reinforced Concrete", ACI 318.
3. Concrete Reinforcing Steel Institute, "Manual of Standard Practice."
4. American Welding Society, AWS D1.4 "Structural Welding Code -Reinforcing Steel."

1.4 SUBMITTALS

A. Shop Drawings:

1. Shop drawings are required, complete, for all items under this Section. No part of any concrete work for this project shall be installed for which reinforcement shop drawings have not been submitted and reviewed for that part.
2. Details of reinforcing shall conform to applicable reinforcements of reference specifications and standards as listed herein.
3. Drawings shall indicate location, general spacing, and sizes and grades of the reinforcing members, together with all slots, chases, recesses, and openings required for installation of other items of work.
4. Diagrams and general schedules shall indicate the bends, sizes, and lengths of reinforcing members and they shall clearly indicate by diagram or other easily recognizable mark exactly where the steel is to be placed in the beam, girder, slab, etc.

B. Certificates: Submit copies of steel mill certificates of mill analysis, tensile and bend tests for reinforcing steel. Mill certificates shall be furnished at time of steel delivery.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver reinforcement to project site bundled, tagged, and marked. Store concrete reinforcement materials at the site to prevent damage and accumulation of dirt or excessive rust.

PART 2 - PRODUCTS

2.1 WIRE FABRIC

A. ASTM A-185. Fabric style designation shall be as indicated on Drawings in accordance with Wire Reinforcement Institute "Manual of Standard Practice."

2.2 BARS

A. ASTM A-615, Grade 60, deformed unless otherwise indicated.

2.3 BARS, WELDING GRADE

A. Max. 0.30 percent carbon; max. 0.60 percent manganese.

2.4 SUPPORTS FOR REINFORCEMENT

A. Chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement in place shall be in accordance with CRSI Specifications and as specified hereinafter.

B. Exposed Concrete: For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).

2.5 TIE WIRE

A. 18 gauge.

2.6 SHOP FABRICATION

A. All bends and hooks shall conform to standard hook and radial bending details of ACI 315. Bars shall be bent cold. Heating of reinforcement or bending by any method not approved will not be permitted. Bars having kinks or bends not required by approved Bending Schedule shall not be used. Steel shall be bent by fabricator and delivered to the job in a prepared condition ready for installation unless otherwise approved.

PART 3 - EXECUTION

3.1 CLEANING

A. Metal reinforcement shall be clean and free from rust, mill scale, oil, earth, ice, and other materials which reduce or destroy bond with concrete.

3.2 INSTALLATION

A. Comply with the specified standards, and Concrete Reinforcing Steel Institute recommended practice for "Placing Reinforcing Bars" for details and methods of reinforcement placement and supports and as herein specified.

3.3 PLACING REINFORCEMENT

A. Metal reinforcement shall be accurately placed in accordance with the Drawings, Details, and approved shop drawings. All reinforcement shall have the clearances shown on Drawings and as herein specified.

B. Adequate chairs shall be placed under all reinforcing to prevent sagging or to prevent being bent when it will be walked on when pouring is taking place.

C. All wire tying of reinforcing shall be tight loop or a double loop which will prevent bars from slipping or turning over as the concrete operation proceeds, using tie wire. Loose ends of the wires shall be close cut to prevent their becoming exposed in the finished surfaces. Stirrups in beams and girders and ties in columns shall be wired to principal reinforcing members. When splices other than those shown on Drawings are required, character and detail of splice shall be as approved.

D. Welding shall not be carried out on any reinforcement without prior approval.

E. Contractor shall have as many qualified men on hand as necessary to check the steel continuously as the concrete placing is in progress. Their job shall be to make sure there are no changes in the positioning of the steel and to keep the personnel who are placing the concrete from walking on or otherwise dislocating the steel.

F. Tieing: Saddle tie reinforcing at intersections with tie wire. Wire stirrups to both top and bottom bars.

G. Outside Bars: Place outside bars of slab reinforcement, both main and temperature, parallel to beams or walls, not more than 1/2 bar spacing away from adjacent face of such parallel members.

3.4 SPLICES

A. General: Splicing of bars larger than #4 not permitted. Stagger splices in continuous adjacent bars. Unless indicated otherwise in Drawings, lap reinforcing steel as follows:

1. Unscheduled Bars: 36 bar diameters at splices.
2. Horizontal Wall Steel: 90 degree bends and 12 inch returns at corners.

3.5 ANCHORS AND FITTINGS

A. Provide all anchors and fittings, etc., required for proper construction of concrete work and the bonding of masonry that is to be anchored to concrete. Locations, spacings, type of fittings and anchors, etc., shall be according to standard practice and as shown on Drawings.

3.6 RODS AND STIRRUPS

A. Where there are no stirrups scheduled and/or indicated on the Drawings for beams, No. 4 bar stirrups shall be provided in accordance with the beam schedule notes as listed on the Drawings, or closer if necessary to tie and support the steel in place.

B. Furnish cut rods of No. 3 or No. 4 bars as may be required for supporting top steel in beams, girders, etc., to hold it in position. These rods shall be securely hung from spreaders or braces on the formwork.

3.7 CONCRETE PROTECTION FOR REINFORCEMENT

A. General: Reinforcement (including stirrups) shall be protected by the thickness of concrete as specified in ACI 318 unless indicated otherwise.

B. Minimum Coverage: Unless otherwise shown, the thickness of concrete over reinforcement including stirrups shall be as follows:

1. Where concrete is deposited against ground without forms, not less than 3 inches.
2. Where concrete may be exposed to the ground but where placed in forms, not less than 2 inches.
3. All concrete exposed to the weather, not less than 2 inches.
4. In slabs not exposed to weather, not less than 3/4 inch.
5. In beams not exposed to the ground or to the weather, not less than 1-1/2 inches.
6. In all cases, the thickness of concrete over reinforcement shall be at least equal to the diameter of the bars except at slabs and joists.

3.8 INSPECTION OF STEEL PLACEMENT

A. Contractor shall give 24 hours notice to obtain approval of placement of reinforcing steel before concrete is placed. Such inspection is in nature of assisting Contractor to minimize errors, and in no case will it operate to relieve Contractor of his responsibility to provide materials and workmanship required by Contract Documents.

END OF SECTION 03 20 00

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Providing cast-in-place concrete materials and construction procedures for normal weight structural concrete for equipment pads.

1.3 RELATED SECTIONS

A. Division 3 Section 03 10 00, "Concrete Forms."

B. Division 3 Section 03 20 00, "Concrete Reinforcement."

1.4 PERFORMANCE REQUIREMENTS

A. Codes and Standards: Comply with applicable provisions of following codes, specifications, and standards except as otherwise shown or specified.

1. ACI 301 "Specifications for Structural Concrete for Buildings."
2. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete."
3. ACI 318 "Building Code Requirements for Reinforced Concrete."

1.5 SUBMITTALS

A. Laboratory test reports shall be submitted for approval 48 hrs. prior to start of work for concrete materials and mix design tests. Refer to article "Proportioning and Design of Mix" hereinafter this Section for specific requirements. Submit reports of Inspection and Testing as specified under "Field Quality Control".

B. Product Data: Submit data for proprietary materials and items, including admixtures, patching compounds, waterstops, curing compounds, and others as requested by Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cement: Portland, ASTM C-150, Type I (Type III where high early strength is required). Color shall be gray.

B. Aggregate – Normal: ASTM C-33. Maximum size not larger than 1/5 of the narrowest dimension between forms of the member for which the concrete is to be used, nor larger than 3/4 of the minimum clear spacing between reinforcing bars. In walls, beams, and columns, maximum dimension shall be 1-1/2 inches when width, depth, or thickness is 8 inches or less.

C. Aggregate – Fine: Natural sand free from deleterious substances, meeting requirements of ASTM C-33, or LDOTD Standard Specification Article 1003.02(a).

D. Water: Potable.

E. Admixtures:

1. Set Control Retarder: Non-air-entraining conforming to ASTM C-494, Type B.
2. Set Control Accelerator: A water reducing, chlorine-free set accelerating agent conforming to ASTM C-494, Type C or E.
3. Air Entrainment: ASTM C-260, neutralized vinsol resin.
4. Calcium Chloride: Not permitted separately or as an admixture ingredient.

F. Curing Materials:

1. Sheets shall be waterproof paper ASTM C-171 or white polyethylene sheeting: AASHTO M-171.
2. Liquid types shall be ASTM C-309, Type I, Class A, clear with fungitive tint. Type 2, white colored may be used for exterior.
3. Prohibitive Results: Oily, waxy, or loose residue that could interfere with future coatings, flooring adhesives, or sealant bond; discoloration of surfaces designated to remain uncovered.

G. Non-Shrink Grout: A factory mixed, non-metallic, with min. compressive strength at 28 days to be 5000 psi, conforming to ASTM C-1107.

H. Bonding Agent: A two-component, epoxy resin bonding system for application to Portland cement concrete conforming to ASTM C-881, Type I, Grades 1 or 2 Temperature Class as appropriate for application. Acceptable products include "Probond Nos. 821, 822 and 823" by Protex Industries, Inc.; "Epoxy Adhesive System" by Euclid, "Sikadur 32 Hi-Mod" by Sika Corp. or approved equal.

2.2 PROPORTIONING AND DESIGN OF MIX

A. Concrete Compressive Strengths: Unless indicated otherwise on Drawings or elsewhere in Project Manual, the following 28 day strengths shall apply for respective locations.

1. All applications shall be 3,000 psi.

B. General: Submit written reports of proposed mix designs for each type of concrete for review prior to beginning concrete production. At Contractor's option, method used to determine proportioning can be either laboratory trial batch or field experience.

C. Report data shall include following: Aggregate identification, aggregate tests, aggregate scale weight, cement brand, (type, composition), admixture brand, (type, amount), water amount, proportions per cubic yard, gross wt. and yield per cubic yard, slump, air content, strength at 7 and 28 days based on min. of 3 test cylinders.

D. Laboratory Trial Batch Mix Design in accordance with ACI 301.

1. Specimen Preparation: ASTM C-192.
2. Strength Tests: ASTM C-39.
3. Establish a curve showing relationship between water-cement ratio (or cement content) and compressive strength, with at least 3 points representing batches that produce strengths above and below that required. Use not less than 3 specimens tested at 28 days, or an earlier age when time insufficient to establish each point on the curve.

E. Field Experience Mix Design: ACI 301.

1. Establishing Standard Deviation: Where a concrete production facility has a record, based on at least 30 consecutive strength tests that represent similar materials and conditions to those expected, required average compressive strength used as the basis for selecting concrete proportions shall exceed the specified compressive strength at designated test age by at least:

a. 400 psi if standard deviation is less than 300 psi
b. 500 psi if standard deviation is 300 to 400 psi
c. 700 psi if standard deviation is 400 to 500 psi
d. 900 psi if standard deviation is 500 to 600 psi
e. If standard deviation exceeds 600 psi, concrete proportions shall be selected to produce an average strength at least 1200 psi greater than the specified compressive strength.

F. Deviation Reduction: After sufficient experience and test data become available from the job, using ACI 214 methods of evaluation, the standard deviation may be deducted when the probable frequency of tests more than 500 psi below required compressive strength will not exceed 1 in 100, and when the probable frequency of an average of 3 consecutive tests below required compressive strength will not exceed 1 in 100.

G. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows: Not less than l inch nor more than 4 inches.

H. Use of Admixtures:

1. General: Admixtures quantities and application procedures shall be as recommended by manufacturer of admixture for climatic conditions prevailing at time of placing concrete. Refer to articles on "Placing Concrete in Cold and Hot Weather" hereinafter this Section for applicable procedures.
2. Air Entraining: Exterior exposed; 5 percent + 1 percent.

I. Portland Cement - Pozzolan Blend (Contractor's Option): In lieu of a 100 percent pure Portland cement ingredient in the concrete mix design as specified hereinbefore, a Portland cement-pozzolan blend shall be permitted subject to following specifications: Up to 17.5 percent (by weight) of the cement may be replaced, with 1.25 lb. of pozzolan being substituted for each pound of cement replaced.

J. Mix Design Adjustments: Adjustments may be requested by the Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant. Submit adjustments for review prior to making any change. No additional payment will be allowed for adjustments made to achieve specified performance or for the Contractor's benefit.

2.3 CONCRETE MIXING

A. Comply with the requirements of ASTM C-94 for Ready-Mix Concrete. No water shall be added to mix after truck has left plant, unless authorized by Engineer. When air temperature is between 85 degrees F and 90 degrees F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 INSPECTION

A. Immediately in advance of placing concrete, excavation, forms, reinforcement, inserts, etc., will be inspected by the Engineer and if any part of the work is determined to be unsatisfactory, concrete work shall not proceed at that part until all defects have been remedied and approval has been obtained. Such approval shall not in any way relieve Contractor of his obligation to produce the finished concrete required by provisions of the Drawings and Specifications.

3.2 PREPARATION

A. Before depositing concrete, debris and water shall be removed from spaces to be occupied by concrete. Reinforcement shall be thoroughly secured in position. Concrete shall be wheeled over formwork only on runways supported from forms and not on reinforcing steel.

3.3 BONDING AND GROUTING

A. Before depositing new concrete on or against concrete which has set, thoroughly roughen and clean existing surfaces. Re-tighten forms, slush existing concrete surfaces with coat of neat epoxy grout. Place new concrete before grout has attained its initial set.

3.4 PLACING

A. Placing Concrete in Cold Weather: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures. When air temperature has fallen to or is expected to fall below 40 degrees F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F and not more than 80 degrees F at point of placement. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.

B. Placing Concrete in Hot Weather: Placing concrete in hot weather shall be in accordance with ACI 305 except as modified herein. Extra care shall be taken to reduce the temperature of the concrete being placed, and to prevent rapid drying of newly placed concrete. When the outdoor ambient temperature is more than 90 degrees F, the temperature of the concrete shall not exceed 90 degrees F; the fresh concrete shall be shaded as soon as possible after placing; and curing shall be started as soon as the surface of the fresh concrete is sufficiently hard to permit it without damage. Concrete placement temperatures shall be controlled by the Contractor at his expense and shall be accomplished by one or a combination of procedures of ACI 305, but not limited to being accomplished by (1) shading and cooling the aggregates; (2) avoiding use of hot cement; (3) cooling mixing water by additions of ice; (4) insulating water supply lines and tanks; (5) insulating mixer drums or cooling them with sprays or wet burlap coverings; (6) working only at night; and (7) addition of a retarder or water reducing retarder in the mix, if approved. Reduce the temperature of side forms by aerating the forms with wet burlap or similar covering materials. Cool underlying material by sprinkling lightly with water.

C. Placing – General: Handle concrete from mixer to place of final deposit as rapidly as practicable by methods which prevent separation and/or loss of ingredients. Under no circumstances shall concrete which has partially hardened be deposited in the work. Pumping shall be permitted with approval as to times and locations. Deposit concrete in forms as near as practicable in its final position to avoid rehandling. Deposit concrete so as to maintain a plastic surface approximately horizontal, until completion of the unit. Lifts shall be 18 inches to 24 inches.

1. Forms for walls and/or thin sections of considerable height shall be provided with openings, or other devices such as tremies, which will permit concrete to be placed in a manner that will prevent segregation and accumulation of hardened concrete on forms or metal reinforcement, above level of concrete.
2. When concrete is conveyed by chutes, equipment shall be of such design as to insure a continuous slide on chute. Chutes shall be of metal or metal lined and different portions shall have approximately the same slope.
3. Slope of chutes shall not be less than one vertical to two horizontal and shall be such as to prevent segregation of ingredients.
4. When operation is intermittent, chute shall discharge into a hopper. Chute shall be thoroughly cleaned before and after each run, and debris and any water shall be discharged outside the forms.
5. Concrete shall be deposited continuously or in layers of such thickness that no concrete will be deposited which has hardened sufficiently to cause formation of seams and planes

of weakness within the section. If a section cannot be placed continuously, construction joints may be located at points as provided for in Drawings or approved. Such joints shall be made in accordance with provisions of "Construction Joints" article hereinafter this Section.

3.5 CONSOLIDATING CONCRETE

A. Formwork: Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 309, to suit the type of concrete and project conditions. Vibration of forms and reinforcing will not be permitted, unless otherwise approved.

1. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not further than the visible effectiveness of the machine. Place vibrators to penetrate the layer of concrete rapidly and at least 6 inches into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit the duration of vibration to the time necessary to consolidate the concrete and complete embedment of reinforcement and other embedded items without causing segregation of the mix.

3.6 CONSTRUCTION JOINTS

A. Location: Locate construction joints so as to least impair the strength and appearance of the structure. Obtain approval of layout showing proposed location of construction joints before proceeding.

3.7 FINISHING - GENERAL REQUIREMENTS

A. Trowelling: All concrete finish so noted shall be troweled smooth, worked to a good hard even surface, free from tool marks and other defects, and finished according to best practice. Last two trowelings shall be hand troweled.

B. Exterior concrete shall not be applied when weather conditions are unsuitable or else temporary protection (canvas, etc.) shall be supplied during finishing and setting period.

C. Screeds: All floor surfaces shall be placed by the use of continuous pipe screeds which are straight and which have been supported by chairs or other approved methods to give surfaces which are within the specified tolerances.

3.8 TOLERANCES

A. Vertical Alignment: ACI 117, 1/4 inch in 10 feet.

B. Cross-section Thickness: (Beams, walls, piers under 12 inches thick) ACI 117, + 3/8 inch -1/4 inch.

C. Tolerances shall not be cumulative.

3.9 CONCRETE SURFACE REPAIRS

A. Formed Surfaces: Immediately after removal of forms, pack holes remaining from bolts or tie rods full with epoxy mortar. Remove and patch all defects or correct as otherwise directed. Finish to match adjoining surfaces.

1. Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Engineer. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes and fill with epoxy mortar.

B. Unformed Surfaces: Repair surface defects including crazing and cracks in excess of 0.01 inch wide or that penetrate to the reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.

1. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days. Correct low areas in unformed surfaces during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
2. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

3.10 FIELD QUALITY CONTROL

A. Inspection and Testing: Inspection and testing of concrete shall be performed by a firm appointed, and paid for by Owner. Contractor shall make arrangements and pay an approved Testing Laboratory for the design of concrete mix proportions as specified hereinbefore this section under "Proportioning and Design of Mix."

1. Sample and test all concrete placed at the job site. Each sample shall consist of three cylinders, one for 7 day testing, two for 28 day testing. Secure samples in accordance with ASTM C-172, curing and packing shall be ASTM C-31.
2. Take at least one sample of each class or type of concrete from each pouring operation each day.
3. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
4. Air Content: ASTM C 173, volumetric method for normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
5. Concrete Temperature: Test hourly when air temperature is 40 degrees F and below, when 80 degrees F and above, and each time a set of compression test specimens is made.

6. Compressive Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cubic yards plus additional sets for each 50 cubic yards more than the first 25 cubic yards of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days.

B. Tests on Hardened Concrete in Structure:

1. General: When there is evidence that the strength of the concrete structure in-place does not meet specification requirements, the Engineer shall request that a testing service take cores drilled from hardened concrete for compressive strength determination complying with ASTM C-42. The Contractor shall pay for drilling and testing cores.
2. Sampling: Take at least 3 representative cores from each member of area of suspect strength, from locations directed by the Engineer.
3. Testing: Test cores in saturated-surface-dry condition per ACI 318 if the concrete will be wet during the use of the completed structure.
4. Test cores in an air-dry condition per ACI 318 if the concrete will be dry at all times during use of the completed structure.
5. Evaluation of Core Test: Strength of concrete for each series of cores will be considered satisfactory if their average compressive strength is at least 85 percent and no single core is less than 75 percent of the 28 day required compressive strength.
6. Static Load Tests: Conduct static load test and elevations complying with ACI 318 if the results of the core tests are unsatisfactory, or if core tests are impracticable to obtain.
7. Correction of Work: Contractor shall remove and replace work found unacceptable by the above tests, at no added expense to the Owner.

C. Evaluation of Concrete Tests (Lab cured):

1. Acceptable Strength Tests: Considered satisfactory if complying with the following: Averages of all sets of three consecutive compressive strength tests results equal or exceed the 28 day design. No individual strength tests falls below the required compressive strength by more than 500 psi.
2. Unacceptable Strength Tests: If the compressive strength tests fail to meet the minimum requirements specified, the concrete represented by such tests will be considered deficient in strength and subject to additional testing as herein specified.

D. Evaluation of Concrete Teats (Field cured):

1. Unacceptable Strength Tests: Provide improved means and procedures for protecting concrete when the 28-day compressive strength of field-cured cylinders is less than 85 percent of compressive laboratory-cured cylinders.
2. Acceptable Low Tests: When laboratory-cured cylinder strengths are appreciably higher than the minimum required compressive strength, field-cured cylinder strengths need not exceed the minimum required compressive strength by more than 500 psi even though the 85 percent criterion is not met.

SCHEDULE OF CONCRETE FINISHES

3.11 SMOOTH FORMED FINISH

A. Location: Interior and exterior formed vertical surfaces exposed to public view or are covered with a coating material applied directly to concrete, such as paint.

B. Procedure: Produce "as cast" finish. Patch honeycombing, tie-holes, and other defects as specified herein under "Patching." Fins, burrs, and other projections shall be removed. Rub smooth, freshly hardened concrete with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.

3.12 NON-SLIP BROOM FINISH

A. Location: Exposed slabs and elsewhere where indicated.

B. Procedure: Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route water sure.

3.13 CONCRETE CURING AND PROTECTION.

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperature, and maintain without drying at a relatively constant temperature for the period of time necessary for hydration of the cement and proper hardening of the concrete. Start initial curing as soon as free moisture has disappeared from the concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 72 hours. Begin final curing procedures immediately following initial curing and before the concrete has dried. Continue final curing for at least 7 days and in accordance with ACI 301 procedures. Avoid rapid drying at the end of the final curing period.

B. Curing Methods: Perform final curing of concrete by one of following methods at Contractor's option.

C. Moisture curing, keeping the surface of the concrete continuously wet by covering with water.

D. Moisture – Cover: Moisture retaining cover shall be placed on surfaces for curing period.

E. Liquid Membrane applied to damp concrete surfaces as water film has disappeared in accordance with manufacturer's directions.

1. Do not use membrane curing compounds on surfaces which are to be covered with a coating material applied directly to the concrete or with a covering material bonded to the concrete, such as other concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring, painting, and other coatings and finish materials.

F. Temperature of Concrete During Curing: When the atmospheric temperature is 40 degrees F and below, maintain the concrete temperature between 50 and 70 degrees F continuously throughout the curing period. When necessary, make arrangements before concrete placing for

continuous heating, covering, insulation, or housing as required for the concrete curing period. Provide cold weather protections complying with the requirements of ACI 306.

3.14 CURING OF POZZOLAN BLEND CONCRETE

A. Concrete shall be protected against moisture loss, rapid temperature change, mechanical injury, and injury from rain or flowing water for a period of ten days. Concrete shall be maintained in a moist condition at temperature above 50 degrees F throughout the curing period. Concrete shall be protected from rapid temperature change and rapid drying for the first 24 hours following the removal of temperature protection. Curing activities shall be started as soon as free water has disappeared from the surface of the concrete after placing and finishing. Curing shall be accomplished by the following methods or combination thereof, as approved: moist curing, impervious sheet curing, membrane-forming compound.

B. Removal of forms over pozzolan blend concrete shall not commence until 14 days after placing concrete.

END OF SECTION 03 30 00

SECTION 23 01 00 - BASIC MECHANICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Piping materials and installation instructions common to most piping systems.
2. Transition fittings.
3. Dielectric fittings.
4. Mechanical sleeve seals.
5. Sleeves.
6. Escutcheons.
7. Grout.
8. Equipment installation requirements common to equipment sections.
9. Painting and finishing.
10. Supports and anchorages.
11. Access panels.
12. Motor starters.

1.3 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures.

F. Examples include installations within unheated shelters.

G. The following are industry abbreviations for rubber materials:

1. EPDM: Ethylene-propylene-diene terpolymer rubber.
2. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Dielectric fittings.
2. Mechanical sleeve seals.
3. Escutcheons.

B. Shop Drawings: Detail fabrication and installation for metal supports and anchorage for mechanical materials and equipment.

C. Coordination Drawings: Submit, as soon as feasible after award of contract, all mechanical room and exterior equipment layouts at a scale not less than 1/4 inch=1 foot showing the layout of the actual equipment to be used. Detail major elements, components, and systems of mechanical equipment and materials in relationship with other systems, installations, and building components. Show space requirements for installation and access. Indicate if sequence and coordination of installations are important to efficient flow of the Work. Include the following:

1. Planned piping layout, including valve and specialty locations and valve-stem movement.
2. Clearances for installing and maintaining insulation.
3. Clearances for servicing and maintaining equipment, accessories, and specialties, including space for disassembly required for periodic maintenance.
4. Equipment and accessory service connections and support details.
5. Exterior wall.
6. Sizes and location of required concrete pads and bases.
7. Floor plans and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.

1.5 QUALITY ASSURANCE

A. Equipment Selection: Equipment of higher electrical characteristics, physical dimensions, capacities, and ratings may be furnished provided such proposed equipment is approved in writing and connecting mechanical and electrical services, circuit breakers, conduit, motors, bases, and equipment spaces are increased. Costs for these increases will be the responsibility of the contractor. No additional costs will be approved for these increases. If minimum energy ratings or efficiencies of equipment are specified, equipment must meet design and commissioning requirements.

B. Drawings: The Mechanical Drawings show the general arrangement of all piping, equipment, and appurtenances, and shall be followed as closely as actual building construction and the work of other trades will permit. The Mechanical work shall conform to the requirements shown on all the Drawings. Because of the small scale of

the Mechanical Drawings, it is not possible to indicate all offsets, fittings, and accessories which may be required. The Contractor shall investigate the structural and finish conditions and other building components affecting the work and shall arrange his work accordingly, providing such offsets, fittings, and accessories as may be required to meet such conditions. No extras will be approved for required additional offsets and fittings. Any offsets or additional fittings required to coordinate mechanical systems with existing conditions and other trades, or that are necessary for the complete installation of the system, including modifications to shop or off-site fabricated piping and/or ductwork, all shall be provided by the Contractor at no additional cost to the Owner.

C. Comply with International Building Code.

D. Comply with International Mechanical Code.

E. Comply with International Plumbing Code with Louisiana Amendments.

F. Comply with Louisiana State Energy Code.

G. Comply with all applicable NFPA Codes, particularly the following: NFPA 90A, 90B, and 101.

H. Comply with all applicable local codes.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and prevent entrance of dirt, debris, and moisture.

B. Protect stored pipes and tubes from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor, if stored inside.

C. Protect flanges, fittings, and piping specialties from moisture and dirt.

1.7 SEQUENCING AND SCHEDULING

A. Coordinate mechanical equipment installation with other building components and existing conditions.

B. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction to allow for mechanical installations.

C. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning before closing in building.

D. Coordinate requirements for access panels and doors if mechanical items requiring access are concealed behind finished surfaces.

E. Coordinate installation of identifying devices after completing covering and painting, if devices are applied to surfaces. Install identifying devices before installing acoustical ceilings and other concealment.

1.8 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. No additional costs will be approved for these modifications. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.10 COORDINATION

A. Coordinate installation of required supporting devices.

B. Coordinate requirements for access panels and doors for mechanical items requiring access that are concealed behind finished surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by firms regularly engaged in the manufacture of products required, whose products have been in satisfactory use in similar service.

2.2 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 23 Piping Sections and "Pipe and Fitting Material Schedule" on the Drawings for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

A. Refer to individual Division 23 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8 inch (3.2 mm) maximum thickness unless thickness or specific material is indicated.

a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

2. AWWA C110, rubber, flat face, 1/8 inch (3.2 mm) thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.

C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

E. Brazing Filler Metals: AWS A5.8, BAg1, silver alloy.

F. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

G. Solvent Cements: Manufacturer's standard solvent cements for the following:
1. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

2.4 DIELECTRIC FITTINGS

A. Description: Combination fitting of copper alloy and ferrous materials with threaded, flanged, solder-joint, plain, or weld-neck end connections that match piping system materials and isolate joined dissimilar metals to prevent galvanic action and stop corrosion.

B. Insulating Material: Suitable for system fluid, pressure, and temperature.

C. Revise pressure ratings and temperatures in five paragraphs and associated subparagraphs below to suit project or add other options for specific applications.

D. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig (2070-kPa) minimum working pressure at 225 degrees F (107 degrees C).

2.5 SLEEVES

A. Galvanized-Steel Sheet: 0.0239 inch (0.6 mm) minimum thickness; round tube closed with welded longitudinal joint.

B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

2.6 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.

1. Finish: Polished chrome-plated.

C. Split-Plate, Stamped-Steel Type: With concealed or exposed-rivet hinge, set screw, and chrome-plated finish.

D. Split-Casting, Floor-Plate Type: Cast brass with concealed hinge and set screw.

2.7 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

2.8 ACCESS PANELS

A. Access Panels: Flush metal hinged access panel and frame (type as required for surface encountered), prime coat finish, and key actuated cylinder lock.

B. Access Panels: Minimum size 12 inch x 12 inch. Locate over device to be serviced.

2.9 MOTOR STARTERS

A. Square D 8536, General Electric CR206, Cutler-Hammer Freedom Series, Cerus BAS Series, or approved equivalent (except where reduced voltage type are specified) with overload protection in each phase (with correctly sized heaters) in NEMA Type I

enclosure unless noted otherwise, reset button in cover, and all of the same manufacturer. Provide auxiliary contacts for interlocking where required. Coordinate auxiliary contact needs with Division 23 Section 230993, ”Building Management and Control Systems (BMCS)." Include HOA switch and pilot light in cover. Provide control power step-down transformer with sufficient additional capacity to handle essential control requirements (coordinate with Division 23 Section 230993, ”Building Management and Control Systems (BMCS)").

PART 3 - EXECUTION

3.1 MECHANICAL DEMOLITION

A. Refer to Division 01 Section, "Cutting and Patching" and Division 02 Section, "Selective Demolition" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove mechanical systems, equipment, and components indicated to be removed.

1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
3. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
4. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
5. Equipment to Be Removed: Disconnect and cap services and remove equipment.
6. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
7. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 23 Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping to permit valve servicing.

G. Install piping at indicated slopes.

H. Install piping free of sags and bends.

I. Install fittings for changes in direction and branch connections.

J. Extruded-tee connections are not acceptable.

K. Weld-o-let taps are not acceptable as substitutes for tee fittings.

L. Install piping to allow application of insulation.

M. Select system components with pressure rating equal to or greater than system operating pressure.

N. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:

1. New and Existing Piping:

    a. Bare or Insulated Piping at Ceiling or Wall Penetrations in Finished Spaces: Split-casting, cast-brass type with polished chrome-plated finish.
    b. Bare Piping in Unfinished Service Spaces: Split-plate, stamped-steel type with concealed or exposed-rivet hinge and set screw clips.
    c. Bare Piping in Equipment Rooms: Split-plate, stamped-steel type with set screw clips.
    d. Bar Piping at Floor Penetration in Equipment Rooms: Split-casting floor-plate type.

O. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces.

    a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches (50 mm) above finished floor level.

2. Install sleeves that are large enough to provide 1/4 inch (6.4 mm) annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

a. Steel Pipe Sleeves: For pipes smaller than NPS 6 (DN 150).
b. Steel Sheet Sleeves: For pipes NPS 6 (DN 150) and larger, penetrating gypsum-board partitions.

P. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1 inch (25 mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Install steel pipe for sleeves smaller than 6 inches (150 mm) in diameter.
2. Install cast-iron "wall pipes" for sleeves 6 inches (150 mm) and larger in diameter.

Q. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

R. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials.

S. Verify final equipment locations for roughing-in.

T. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.3 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements, Division 23 Sections, and Schedules on the Drawings, specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.

E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.

2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.

H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

I. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join pipe and fittings according to the following:

1. PVC Pressure Piping: ASTM D 6272.
2. PVC Nonpressure Piping: ASTM D 2855.

3.4 PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:

1. Install unions, in piping NPS 2 (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Install flanges, in piping NPS 2-1/2 (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment.
3. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.
4. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.5 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

E. Electrical Work: Wherever equipment requiring electrical connection is specified, all wiring shall be furnished and installed under Division 26 of the Specifications. Motor starters, starting switches, protective devices, and other means for the operation and control of equipment shall be furnished under the various mechanical sections, and installed and electrically connected complete under Division 26 unless otherwise specifically noted, except that control devices that are installed in or on ducts, piping, or

mechanical equipment shall be mounted under Division 23. If equipment is furnished requiring power wiring different from that indicated on the Electrical Drawings, the Contractor furnishing the equipment shall be responsible for any required revisions and pay any additional costs connected therewith. Wiring revisions shall be submitted to the Engineer for approval prior to installation.

1. Motor starters shall be provided for each poly phase motor and for single phase motors requiring automatic control. Additional disconnects required by the National Electrical Code shall be furnished, installed, and connected under Division 26 of the Specifications.
2. Contractors furnishing items to be wired shall provide adequate wiring diagrams.
3. Temperature control wiring is included in Division 23, in accordance with the requirements of Division 26 Sections.

F. Manufacturer's Installation and Operating Instructions: All equipment and material shall be installed and operated in strict accord with manufacturer's "Installation and Operation Instructions." The manufacturer's installation instructions shall become part of this specification, and shall take precedence over and/or supplement any specification herein and as shown and/or described on plans. All individual items of equipment and components thereof shall be 100 percent accessible for repair, removal, or replacement without functional impairment or dismantling of any adjoining major surfaces or assemblies.

3.6 PAINTING

A. Painting of mechanical systems, equipment, and components is specified in Division 9.

B. Damage and Touch-Up: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.7 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.

B. Field Welding: Comply with AWS D1.1.

3.8 ERECTION OF WOOD SUPPORTS AND ANCHORAGES

A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor mechanical materials and equipment.

B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.

C. Attach to substrates as required to support applied loads.

3.9 GROUTING

A. Mix and install grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

3.10 MISCELLANEOUS

A. Services: Services as indicated.

B. The Contractor shall, before submitting a proposal, verify the location, depth, size, and pressure or grade of existing lines to which he is to make connections and shall include in his bid the cost of any required revisions. If for any reason conditions appear that will adversely affect the proper installation and operation of the systems, such conditions shall be reported to the Engineer in writing for his decision ten days prior to bid date. All cutting and patching of paving, etc. required for connection to existing piping lines shall be paid for or provided by the Contractor. Locations of plumbing lines are shown in accordance with data provided by the Owner. The points of connection to the existing piping are approximate only and shall be verified by each bidder. Each bidder shall include adequate funds in his bid price to cover all cost of connections to existing piping regardless of exact location, and shall hold the Owner harmless as to additional costs or extras regarding those connections.

C. Access Panels: Provide access panels as indicated. In addition, provide access panels for each concealed item requiring service or adjustment that would otherwise be inaccessible. Access panel locations shown on the Drawings are approximate. Exact location shall be verified with

END OF SECTION 23 01 00

SECTION 23 05 19 - METERS AND GAGES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes meters and gages for mechanical systems.

1.3 SUBMITTALS

A. Product Data: Include scale range, ratings, and calibrated performance curves for each meter, gage, fitting, specialty, and accessory specified.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equivalent:

1. Bimetal Dial Thermometers:

a. Marsh Bellofram, L Series.
b. Miljoco, MX Series.
c. Trerice: H. O. Trerice Co., B Series.
d. Weiss Instruments, Inc., 5BVM Series.
e. Weksler Instruments, AF Series.

2. Pressure Gages:

a. Marsh Bellofram, H Series.
b. Miljoco, P45 Series.
c. Trerice: H. O. Trerice Co., 890 Series.
d. Weiss Instruments, Inc., 4CTS Series.
e. Weksler Instruments, EA Series.

3. Test Plugs:

a. Flow Design, Inc., "Super Seal".
b. Peterson Equipment Co., Inc., #110.

c. Sisco Manufacturing Co., #BNE-025.

2.2 THERMOMETERS, GENERAL

A. Scale Range: Temperature ranges for services listed are as follows:

1. Hot Water: 30 to 300 degrees F, with 2-degree scale divisions (0 to 150 degrees C, with 1-degree scale divisions).
2. Chilled Water: 0 to 100 degrees F, with 2-degree scale divisions (minus 18 to plus 38 degrees C, with 1-degree scale divisions).

B. Accuracy: Plus or minus 1 percent of range span or plus or minus one scale division to maximum of 1.5 percent of range span.

2.3 BIMETAL DIAL THERMOMETERS

A. Description: ASME B40.3; direct-mounting, universal-angle dial type.

B. Case: Stainless steel with 5 inch (125 mm) diameter, glass lens.

C. Adjustable Joint: Finish to match case, 180 degree adjustment in vertical plane, 360 degree adjustment in horizontal plane, with locking device.

D. Element: Bimetal coil.

E. Scale: Satin-faced nonreflective aluminum with permanently etched markings.

F. Stem: Stainless steel for separable socket, of length to suit installation.

2.4 SEPARABLE SOCKETS

A. Description: Fitting with protective socket for installation in threaded pipe fitting to hold fixed thermometer stem.

1. Material: Stainless steel, for use in steel piping.
2. Extension-Neck Length: Nominal thickness of 2 inches (50 mm), but not less than thickness of insulation. Omit extension neck for sockets for piping not insulated.
3. Insertion Length: To extend 2 inches (50 mm) into pipe.
4. Heat-Transfer Fluid: Oil or graphite.

2.5 THERMOMETER WELLS

A. Description: Fitting with protective well for installation in threaded pipe fitting to hold test thermometer.

1. Material: Stainless steel, for use in steel piping.

2. Extension-Neck Length: Nominal thickness of 2 inches (50 mm), but not less than thickness of insulation. Omit extension neck for wells for piping not insulated.
3. Insertion Length: To extend 2 inches (50 mm) into pipe.
4. Cap: Threaded, with chain permanently fastened to socket.
5. Heat-Transfer Fluid: Oil or graphite.

2.6 PRESSURE GAGES

A. Description: Phosphor-bronze bourdon-tube type with bottom connection; dry type, unless liquid-filled-case type is indicated.

B. Case: Drawn steel, brass, or aluminum with 4-1/2 inch (115 mm) diameter, glass lens.

C. Connector: Brass, NPS 1/4 (DN8).

D. Scale: White-coated aluminum with permanently etched markings.

E. Accuracy: Grade A, plus or minus 1 percent of middle 50 percent of scale.

F. Range: Comply with the following:

1. Fluids under Pressure: Two times the operating pressure.

2.7 PRESSURE-GAGE FITTINGS

A. Valves: NPS 1/4 (DN8) brass or stainless-steel needle type.

B. Snubbers: NPS 1/4 (DN8) brass bushing with corrosion-resistant porous-metal disc of material suitable for system fluid and working pressure.

C. Syphons: NPS 1/4 (DN8) coil of brass tubing with threaded ends.

2.8 TEST PLUGS

A. Description: Nickel-plated, brass-body test plug in NPS 1/2 (DN15) fitting.

B. Body: Length as required to extend beyond insulation.

C. Pressure Rating: 500 psig (3450 kPa) minimum.

D. Core Inserts: Two self-sealing valves, suitable for inserting 1/8 inch (3 mm) OD probe from dial-type thermometer or pressure gage.

E. Core Material for Air and Water: Minus 30 to plus 275 degrees F (Minus 35 to plus 136 degrees C), ethylene-propylene-diene terpolymer rubber.

F. Test-Plug Cap: Gasketed and threaded cap, with retention chain or strap.

G. Test Kit: Pressure gage and adapter with probe, two bimetal dial thermometers, and carrying case.

1. Pressure Gage and Thermometer Ranges: Approximately two times the system's operating conditions.

PART 3 - EXECUTION

3.1 METER AND GAGE INSTALLATION, GENERAL

A. Install meters, gages, and accessories according to manufacturer's written instructions for applications where used.

3.2 THERMOMETER INSTALLATION

A. Install thermometers and adjust vertical and tilted positions.

B. Install separable sockets in vertical position in piping tees where fixed thermometers are indicated.

1. Install with socket extending a minimum of 2 inches (50 mm) into fluid.
2. Fill sockets with oil or graphite and secure caps.

C. Install thermometer wells in vertical position in piping tees where test thermometers are indicated.

1. Install with stem extending a minimum of 2 inches (50 mm) into fluid.
2. Fill wells with oil or graphite and secure caps.

3.3 PRESSURE-GAGE INSTALLATION

A. Install pressure gages in piping tees with pressure-gage valve located on pipe at most readable position.

B. Install pressure-gage needle valve and snubber in piping to water pressure gages.

C. Install pressure-gage needle valve and siphon in piping to steam pressure gages.

3.4 TEST PLUG INSTALLATION

A. Install test plugs in piping tees where indicated, located on pipe at most readable position. Secure cap.

3.5 CONNECTIONS

A. Piping installation requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of piping and specialties. The following are specific connection requirements:

1. Install meters and gages adjacent to machines and equipment to allow service and maintenance.

3.6 ADJUSTING AND CLEANING

A. Calibrate meters according to manufacturer's written instructions, after installation.

B. Adjust faces of meters and gages to proper angle for best visibility.

C. Clean windows of meters and gages and clean factory-finished surfaces. Replace cracked and broken windows, and repair scratched and marred surfaces with manufacturer's touchup paint.

END OF SECTION 23 05 19

SECTION 23 05 20 - VALVES FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes general duty valves common to several mechanical piping systems.

1.3 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data for each valve type. Include body material, valve design, pressure and temperature classification, end connection details, seating materials, trim material and arrangement, dimensions and required clearances, and installation instructions. Include list indicating valve and its application.

C. Maintenance data for valves to include in the operation and maintenance manual specified in Division 1. Include detailed manufacturer's instructions on adjusting, servicing, disassembling, and repairing.

1.4 QUALITY ASSURANCE

A. ASME Compliance: Comply with ASME B31.9 for building services piping.

B. MSS Compliance: Comply with the various MSS Standard Practice documents referenced.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:

1. Protect internal parts against rust and corrosion.
2. Protect threads, flange faces, grooves, and weld ends.
3. Set globe and gate valves closed to prevent rattling.
4. Block check valves in either closed or open position.

B. Use the following precautions during storage:

1. Maintain valve end protection.

2. Store indoors and maintain valve temperature higher than ambient dew-point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equivalent:

1. Ball Valves:

		2 Inches and Smaller
a.	Milwaukee	BA110
b.	Stockham	S216

2. Gate Valves, Class 125:

		2-1/2 Inches and Larger
a.	Crane	461
b.	Jenkins	326
c.	Hammond	IR 1138
d.	Walworth	719-F

3. Swing Check Valves, Class 125:

		2 Inches and Smaller	2-1/2 Inches and Larger
a.	Crane	37	373
b.	Jenkins	92-A	624
c.	Hammond	IB 940	IR 1124
d.	Walworth	406	928-F

2.2 BASIC, COMMON FEATURES

A. Design: Rising stem or rising outside screw and yoke stems, except as specified below.

1. Non-rising stem valves may be used only where headroom prevents full extension of rising stems.

B. Pressure and Temperature Ratings: As indicated in the "Application Schedule" of Part 3 of this Section and as required to suit system pressures and temperatures.

C. Sizes: Same size as upstream pipe, unless otherwise indicated.

D. Operators: Use specified operators and handwheels, except provide the following special operator features:

1. Handwheels: For valves other than quarter turn.

E. Extended Stems: Where insulation is indicated or specified, provide extended stems arranged to receive insulation.

F. Threads: ASME B1.20.1.

G. Flanges: ASME B16.1 for cast iron, ASME B16.5 for steel, and ASME B16.24 for bronze valves.

H. Solder Joint: ASME B16.18.

1. Caution: Where soldered end connections are used, use solder having a melting point below 840 degrees F (450 degrees C) for gate, globe, and check valves; below 421 degrees F (216 degrees C) for ball valves.

2.3 GATE VALVES

A. Gate Valves, Class 125, 2-1/2 Inches (DN65) and Larger: MSS SP-70, Class 125, 200 psi (1380 kPa) CWP, ASTM A 126 cast-iron body and bonnet, solid cast-iron wedge, brass-alloy stem, outside screw and yoke, teflon-impregnated packing with 2 piece packing gland assembly, flanged end connections; and with cast-iron handwheel.

2.4 CHECK VALVES

A. Swing Check Valves, Class 125, 2 Inches (DN50) and Smaller: MSS SP-80; Class 125, 200 psi (1380 kPa) CWP, or Class 150, 300 psi (2070 kPa) CWP; horizontal swing, Y-pattern, ASTM B 62 cast-bronze body and cap, rotating bronze disc composition seat, threaded or soldered end connections.

B. Swing Check Valves, Class 125, 2-1/2 Inches (DN65) and Larger: MSS SP-71, Class 125, 200 psi (1380 kPa) CWP, ASTM A 126 cast-iron body and bolted cap, horizontal-swing bronze disc, flanged connections.

2.5 BALL VALVES

A. Ball Valves - 2 Inches (DN50) and Smaller: MSS SP-110, Class 150, 600 psi (4140 kPa) CWP, ASTM B 584 bronze body and bonnet, 2-piece construction; chrome-plated brass ball, standard port for 1/2 inch (DN15) valves and smaller and conventional port for 3/4 inch (DN20) valves and larger; blowout proof; bronze or brass stem; teflon seats and seals; threaded end connections.

B. Operator: Vinyl-covered steel lever handle.

C. Stem Extension: For valves installed in insulated piping.

D. Memory Stop: For operator handles.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine piping system for compliance with requirements for installation tolerances and other conditions affecting performance of valves. Do not proceed with installation until unsatisfactory conditions have been corrected.

B. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.

C. Operate valves from fully open to fully closed positions. Examine guides and seats made accessible by such operation.

D. Examine threads on valve and mating pipe for form and cleanliness.

E. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Check gasket material for proper size, material composition suitable for service, and freedom from defects and damage.

F. Do not attempt to repair defective valves; replace with new valves.

3.2 INSTALLATION

A. Install valves as indicated, according to manufacturer's written instructions.

B. Piping installation requirements are specified in other Division 23 Sections. Drawings indicate the general arrangement of piping, fittings, and specialties.

C. Install valves with unions or flanges at each piece of equipment arranged to allow servicing, maintenance, and equipment removal without system shutdown.

D. Locate valves for easy access and provide separate support where necessary.

E. Install valves in horizontal piping with stem at or above the center of the pipe.

F. Install valves in a position to allow full stem movement.

G. For chain-wheel operators, extend chains to 60 inches (1500 mm) above finished floor elevation.

H. Installation of Check Valves: Install for proper direction of flow as follows:

1. Swing Check Valves: Horizontal position with hinge pin level.

3.3 SOLDERED CONNECTIONS

A. Cut tube square and to exact lengths.

B. Clean end of tube to depth of valve socket with steel wool, sand cloth, or a steel wire brush to a bright finish. Clean valve socket.

C. Apply proper soldering flux in an even coat to inside of valve socket and outside of tube.

D. Open gate and globe valves to fully open position.

E. Remove the cap and disc holder of swing check valves having composition discs.

F. Insert tube into valve socket, making sure the end rests against the shoulder inside valve. Rotate tube or valve slightly to ensure even distribution of the flux.

G. Apply heat evenly to outside of valve around joint until solder melts on contact. Feed solder until it completely fills the joint around tube. Avoid hot spots or overheating valve. Once the solder starts cooling, remove excess amounts around the joint with a cloth or brush.

3.4 THREADED CONNECTIONS

A. Note the internal length of threads in valve ends and proximity of valve internal seat or wall to determine how far pipe should be threaded into valve.

B. Align threads at point of assembly.

C. Apply appropriate tape or thread compound to the external pipe threads, except where dry seal threading is specified.

D. Assemble joint, wrench tight. Wrench on valve shall be on the valve end into which the pipe is being threaded.

3.5 FLANGED CONNECTIONS

A. Align flange surfaces parallel.

B. Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly with a torque wrench.

3.6 VALVE END SELECTION

A. Select valves with the following ends or types of pipe/tube connections:

1. Copper Tube Size, 2 Inches (DN50) and Smaller: Solder ends.
2. Steel Pipe Sizes, 2 Inches (DN50) and Smaller: Threaded.
3. Steel and Copper Pipe Sizes, 2-1/2 Inches (DN65) and Larger: Flanged.

3.7 APPLICATION SCHEDULE

A. General Application: Use gate, ball, and butterfly valves for shutoff duty; globe, ball, and butterfly for throttling duty. Refer to Piping System Specification Sections for specific valve applications and arrangements.

B. Chilled Water Systems: Use the following valve types:

1. Ball Valves: For 2 inches and smaller, Class 150.
2. Gate Valves: Class 150, bronze or cast-iron body to suit piping system, for 2-1/2 inches and larger.
3. Bronze Swing Check: Class 150, with composition seat.
4. Check Valves: Iron swing type. Swing check shall be Class 150 with bronze seat ring.

3.8 ADJUSTING

A. Adjust or replace packing after piping systems have been tested and put into service, but before final adjusting and balancing. Replace valves if leak persists.

END OF SECTION 23 05 20

SECTION 23 05 29 - HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes hangers and supports for mechanical system piping and equipment.

1.3 DEFINITIONS

A. MSS: Manufacturers Standardization Society for the Valve and Fittings Industry.

B. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.4 SUBMITTALS

A. Product Data: For each type of pipe hanger, channel support system component, and thermal-hanger shield insert indicated.

B. Welding Certificates: Copies of certificates for welding procedures and operators.

1.5 QUALITY ASSURANCE

A. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Firms regularly engaged in manufacture of supports and hangers, of types and sizes required, whose products have been in satisfactory use in similar service.

2.2 MANUFACTURED UNITS

A. Pipe Hangers, Supports, and Components: MSS SP-58, factory-fabricated components. Refer to "Hanger and Support Applications" Article in Part 3 for where to use specific hanger and support types.

1. Nonmetallic Coatings: On hangers for electrolytic protection where hangers are in direct contact with copper tubing.

2.3 MISCELLANEOUS MATERIALS

A. Mechanical-Anchor Fasteners: Insert-type attachments with pull-out and shear capacities appropriate for supported loads and building materials where used.

B. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars, black and galvanized.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

A. Specific hanger requirements are specified in Sections specifying equipment and systems.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Specification Sections.

C. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:

1. Adjustable Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30 (DN15 to DN750).

D. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20 (DN20 to DN500).
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20 (DN20 to DN500), if longer ends are required for riser clamps.

E. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in Piping System Specification Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches (150 mm) for heavy loads.
2. Steel Clevises (MSS Type 14): For 120 to 450 degrees F (49 to 232 degrees C) piping installations.
3. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.

F. Building Attachments: Except as otherwise indicated, provide factory-fabricated building attachments complying with ANSI/MSS SP-58, selected by Installer to suit building substrate conditions, in accordance with MSS SP-69 and manufacturer's published product information. Select size of building attachments to suit hanger rods.

G. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:

1. Protection Shields (MSS Type 40): Of length recommended by manufacturer to prevent crushing insulation.

H. Thermal-Hanger Shield Inserts:

1. Description: 100-psig- (690-kPa-) minimum, compressive-strength insulation insert encased in sheet metal shield.
2. Insulation-Insert Material for Cold Piping: ASTM C 552, Type II cellular glass with vapor barrier.
3. Insulation-Insert Material for Hot Piping: ASTM C 552, Type II cellular glass.
4. For Hangers and Clamped Systems: Insert and shield shall cover entire circumference of pipe.
5. Insert Length: Extend 2 inches (50 mm) beyond sheet metal shield for piping operating below ambient air temperature.

3.2 HANGER AND SUPPORT INSTALLATION

A. Pipe Hanger and Support Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure. All hangers for equipment and piping are to be supported from building structure even if structural enhancements to roof support is required.

B. Install building attachments within concrete slabs or attach to structural steel. Space attachments within maximum piping span length indicated in MSS SP-69. Install additional attachments at concentrated loads, including valves, flanges, guides, strainers, and expansion joints, and at changes in direction of piping.

C. Install mechanical-anchor fasteners in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

D. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

E. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

F. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

G. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.9, "Building Services Piping," is not exceeded.

H. Do not use wire or perforated metal to support piping, and do not support piping from other piping.

I. Support vertical piping at each floor and roof.

J. Insulated Piping: Comply with the following:

1. All hangers and supports shall be external of insulation.
2. Install MSS SP-58, Type 40 protective shields on all insulated piping. Shields shall span arc of 180 degrees.
3. Shield Dimensions for Pipe: Not less than the following:

a. NPS 1/4 to NPS 3-1/2 (DN8 to DN90): 12 inches (305 mm) long and 0.048 inch (1.22 mm) thick.
b. NPS 4 (DN100): 12 inches (305 mm) long and 0.06 inch (1.52 mm) thick.
c. NPS 5 and NPS 6 (DN125 and DN150): 18 inches (457 mm) long and 0.06 inch (1.52 mm) thick.
d. NPS 8 to NPS 14 (DN200 to DN350): 24 inches (610 mm) long and 0.075 inch (1.91 mm) thick.

3.3 EQUIPMENT SUPPORTS

A. Fabricate structural-steel stands to suspend equipment from structure above or to support equipment above floor.

3.4 METAL FABRICATION

A. Cut, drill, and fit miscellaneous metal fabrications for heavy-duty steel trapezes and equipment supports.

B. Field Welding: Comply with AWS D1.1 procedures for shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work, and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so no roughness shows after finishing and contours of welded surfaces match adjacent contours.

C. Any vertical structural members required to form overhead attachments for hangers or equipment supports shall be located adjacent to walls and any horizontal members be adjacent to the roof structure.

3.5 ADJUSTING

A. Hanger Adjustment: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

3.6 PAINTING

A. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint.

END OF SECTION 23 05 29

SECTION 23 03 53 - MECHANICAL IDENTIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following mechanical identification materials and their installation:

1. Equipment nameplates.
2. Equipment markers.
3. Pipe markers.
4. Valve tags.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

A. ASME Compliance: Comply with ASME A13.1, "Scheme for the Identification of Piping Systems," for letter size, length of color field, colors, and viewing angles of identification devices for piping.

1.5 COORDINATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with location of access panels and doors.

C. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 EQUIPMENT IDENTIFICATION DEVICES

A. Equipment Nameplates: Metal, with data engraved or stamped, for permanent attachment on equipment.

1. Data:

    a. Manufacturer, product name, model number, and serial number.
    b. Capacity, operating and power characteristics, and essential data.
    c. Labels of tested compliances.

2. Location: Accessible and visible.
3. Fasteners: As required to mount on equipment.

B. Equipment Markers: Engraved, color-coded laminated plastic. Include contact-type, permanent adhesive.

1. Terminology: Match schedules as closely as possible.
2. Data:

    a. Name and number as indicated on plans.
    b. Equipment service (area served).

3. Size: 4-1/2 by 6 inches (115 by 150 mm) for equipment (chillers, pumps, air units).

C. Access Panel and Door Markers: 1/16 inch (1.6 mm) thick, engraved laminated plastic, with abbreviated terms and numbers corresponding to identification.

1. Fasteners: Contact-type, permanent adhesive.

2.2 PIPING IDENTIFICATION DEVICES

A. Manufactured Pipe Markers, General: Pre-printed, color-coded, with lettering indicating service, and showing direction of flow.

1. Colors: Comply with ASME A13.1, unless otherwise indicated.
2. Lettering: Use piping system terms indicated and abbreviate only as necessary for each application length.
3. Pipes with OD, Including Insulation, Less Than 6 Inches (150 mm): Full-band pipe markers extending 360 degrees around pipe at each location.
4. Pipes with OD, Including Insulation, 6 Inches (150 mm) and Larger: Either full-band or strip-type pipe markers at least three times letter height and of length required for label.
5. Arrows: Integral with piping system service lettering to accommodate both directions; or as separate unit on each pipe marker to indicate direction of flow.

B. Pre-Tensioned Pipe Markers: Pre-coiled, semi-rigid, plastic formed to cover full circumference of pipe and to attach to pipe without adhesive.

1. Arrows: Integral with piping system service lettering to accommodate both directions; or as separate unit on each pipe marker to indicate direction of flow.

2.3 VALVE TAGS

A. Valve Tags: Stamped or engraved with 1/4 inch (6.4 mm) letters for piping system abbreviation. Provide 5/32 inch (4 mm) hole for fastener.

1. Material: 0.032 inch (0.8 mm) thick brass.
2. Valve-Tag Fasteners: Brass wire-link or beaded chain; or S-hook.

PART 3 - EXECUTION

3.1 APPLICATIONS, GENERAL

A. Products specified are for applications referenced in other Division 22 and 23 Sections. If more than single-type material, device, or label is specified for listed applications, selection is Installer's option.

3.2 EQUIPMENT IDENTIFICATION

A. Install and permanently fasten equipment nameplates on each major item of mechanical equipment that does not have nameplate or has nameplate that is damaged or located where not easily visible. Locate nameplates where accessible and visible. Include nameplates for the following general categories of equipment:

1. Chillers
2. Pumps

B. Install equipment markers with permanent adhesive on or near each major item of mechanical equipment.

1. Letter Size: 1/2 inch (13 mm).
2. Locate markers where accessible and visible. Include markers for the following general categories of equipment:
3. Chillers
4. Pumps

C. Install access panel markers on equipment access panels.

3.3 PIPING IDENTIFICATION

A. Install manufactured pipe markers indicating service on each piping system. Install with flow indication arrows showing direction of flow. Use size to ensure a tight fit.

B. Locate pipe markers and color bands where piping is exposed in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior nonconcealed locations as follows:

1. Near each valve and control device.

2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
3. Near penetrations through walls, floors, ceilings, and nonaccessible enclosures.
4. At access doors, manholes, and similar access points that permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced at maximum intervals of 25 feet along each run. Reduce intervals to 5 feet in areas of congested piping and equipment.
7. On piping above removable acoustical ceilings. Omit intermediately spaced markers.

3.4 VALVE-TAG INSTALLATION

A. Install tags on valves and control devices in piping systems, except check valves.

B. Valve-Tag Size and Shape:

1. Cold Water: 1-1/2 inches (38 mm) round.
2. Hot Water: 1-1/2 inches (38 mm) round.
3. Gas: 1-1/2 inches (38 mm) round.

3.5 ADJUSTING

A. Relocate mechanical identification materials and devices that have become visually blocked by other work.

3.6 CLEANING

A. Clean faces of mechanical identification devices.

END OF SECTION 23 05 53

SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Division 23 Specification Sections, Drawings, and general provisions of the Contract apply to work of this Section, as do other documents referred to in this Section.

1.2 SCOPE OF WORK

A. The Contractor shall obtain the services of an independent Test and Balance (TAB) Company which specializes in the testing and balancing of heating, ventilating and air conditioning (HVAC) systems to test, adjust and balance all HVAC systems in the building(s).

B. The work included in this Section consists of furnishing labor, instruments, and tools required in testing, adjusting and balancing the HVAC systems as described in these Specifications or shown on accompanying Drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. The testing, adjusting, and balancing agency shall act as a reporting agency; that is, list and report each piece of equipment as to identification number, manufacturer, model number, serial number, proper location, specified performance, and report actual performance of all equipment as found during testing. The report is intended to be used during the life of the building as a ready reference indicating original conditions, equipment components, etc.

C. Representatives of the Test and Balance Company shall visit the job site during installation of the HVAC equipment, piping, and ductwork as required.

D. Upon completion of the HVAC system installation, the Test and Balance Company shall perform all required testing and balancing with the full cooperation of the Contractor and his Sub-Contractors. The Contractor shall make changes and/or adjustments to the HVAC system components that are required by the Test and Balance Company to accomplish proper balancing. The TAB agency shall not supply or install any materials or balancing devices such as pulleys, drives, belts, etc. All of this work is by the Contractor and shall be performed at no additional cost to the Owner.

E. The test and balance report complete with a summary page listing all deficiencies shall be submitted to the Architect for review by his Mechanical Engineer. If the Mechanical Engineer agrees with the report, he shall sign it and return it to the Architect. The test and balance report must be complete and must be accepted by the Mechanical Engineer prior to acceptance of the project. Any outstanding test and balance items shall be placed on the punch list and a monetary value shall be assigned to them.

F. After all deficiencies have been corrected, the Mechanical Engineer shall sign the testing and balancing report, and the Test and Balance Company shall supply 4 copies of the

final and complete report to the Architect for inclusion in the Operation and Maintenance Manuals.

G. The items requiring testing, adjusting, and balancing include (but are not restricted to) the following:

1. Hydronic Systems:

a. Pumps
b. System mains and branches
c. Coils
d. Control Valves

1.3 DEFINITIONS, REFERENCES, STANDARDS

A. All work shall be in accordance with the latest edition of the Associated Air Balance Council (AABC) National Standards or the latest standards of the National Environmental Balancing Bureau (NEBB). If these contract documents set forth more stringent requirements than the AABC National Standards or the NEBB Standards, these Contract Documents shall prevail.

1.4 QUALIFICATIONS

A. Agency Qualifications: The TAB Agency shall be a current member of the AABC or the NEBB and must be in good standing with FP&C. A list of these firms shall be obtained from FP&C. Falsification of a TAB report shall be grounds for removal from the FP&C list and the firm's actions shall be reported to the appropriate certification agency. The Contractor may use any FP&C approved TAB firm on a state project.

1.5 SUBMITTALS

A. Procedures and Agenda: The TAB agency shall submit the TAB Procedures and agenda proposed to be used.

B. Sample Forms: The TAB agency shall submit sample forms, which shall include the minimum data required by the AABC National Standards or the NEBB Standards.

1.6 TAB PREPARATION AND COORDINATION

A. Shop drawings, submittal data, up-to-date revisions, change orders, fan curves, pump curves and other data required for planning, preparation, and execution of the TAB work shall be provided when available and no later than 30 days after the Designer has returned the final approved submittal data to the Contractor.

B. System installation and equipment startup shall be complete prior to the TAB agency's being notified to begin.

C. The building control system (BMCS) contractor shall provide and install the control system, including all temperature, pressure and humidity sensors. These shall be calibrated for accurate control. If applicable, the BMCS contractor shall install all necessary computers and computer programs, and make these operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution.

D. All test points, balancing devices, identification tags, etc., shall be accessible and clear of insulation and other obstructions that would impede TAB procedures.

E. Qualified installation or startup personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.

1.7 REPORTS

A. Final TAB Report: The TAB agency shall submit the final TAB report for review by the Architect. On plans provided, all outlets, devices, HVAC equipment, etc., shall be identified (including manufacturer, model number, serial number, motor manufacturer, HP, drive type, fan and motor sheaves and belt number), along with a numbering system corresponding to report unit identification. The TAB agency shall submit an AABC "National Project Performance Guaranty" (or similar NEBB Guaranty) assuring that the project systems were tested, adjusted and balanced in accordance with the project specifications and AABC National Standards (or similar NEBB Standards). The Designer shall certify his approval on the Performance Guaranty.

1. Submit 4 copies of the Final TAB Report to the Architect for inclusion in the Operation and Maintenance Manuals.

PART 2 - INSTRUMENTATION

2.1 GENERAL

A. All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments shall be in accordance with the requirements of AABC National Standards (or similar NEBB Standards).

PART 3 - EXECUTION

3.1 GENERAL

A. The specified systems shall be reviewed and inspected for conformance to Design Documents. Testing, adjusting and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with AABC National Standards (or similar NEBB Standards). Adjustment tolerances shall be + or - 10 percent unless otherwise stated.

B. Equipment settings, including manual damper quadrant positions, valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.

C. All information necessary to complete a proper TAB project and report shall be per AABC or NEBB standards unless otherwise noted. The descriptions of work required, as listed in this section, are a guide to the minimum information needed.

D. TAB contractor shall cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. Upon completion, patch insulation, ductwork, and housings using materials identical to those removed. Seal insulation to reestablish integrity of the vapor barrier.

E. TAB work shall include additional inspection and adjustment of components during the season following the initial balance to include re-balance of any items influenced by seasonal changes or as directed by the Owner.

3.2 HYDRONIC SYSTEMS

A. The TAB agency shall, as applicable, verify that all hydronic equipment, piping, and coils have been filled and purged; that strainers have been cleaned; and that all balancing valves (except bypass valves) are set full open. Examine water in system and determine if it has been treated and cleaned. As applicable, it shall check air vents and expansion or compression tank for proper operation. The TAB agency shall perform the following testing and balancing functions in accordance with the AABC National Standards (or similar NEBB Standards):

1. For system mains and branches:

    a. Adjust water flow in pipes to within design GPM requirements. As applicable, at least one branch balancing valve shall be completely open.

2. For coils:

    a. Tolerances: Test, adjust, and balance all chilled-water and hot-water coils within 10 percent of design requirements.
    b. Verification: Verify the type, location, final pressure drop and GPM of each coil. This information shall be recorded on coil data sheets.

3. For control valves:

    a. Check operation of automatic valves.
    b. Test and record pressure drop and flow across control valves at full flow.

3.3 ADDITIONAL TAB SERVICES

A. Job Site Inspections: During construction, the TAB agency shall inspect the installation of pipe systems, sheet metal work, temperature controls, and other component parts of the HVAC systems as required.

B. Verification of HVAC Controls: The TAB agency shall be assisted by the building control systems Contractor in verifying the operation and calibration of all HVAC and temperature control systems. The following tests shall be conducted:

1. Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets, fire and freeze stats, and other safety devices.
2. Verify that all controlling instruments are calibrated and set for design operating conditions.

C. TAB Report Verification: At the time of final inspection, the TAB agency may be required to recheck, in the presence of the owner's representative, specific and random selections of data, air quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the owner's representative. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, will not exceed 10 percent of the total number tabulated in the report.

END OF SECTION 23 05 93

SECTION 23 07 02 - PIPE INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes preformed, rigid and flexible pipe insulation; insulating cements; field-applied jackets; accessories and attachments; and sealing compounds.

B. Related Sections include Division 23 Section, "Hangers and Supports", for pipe insulation shields and protection saddles.

1.3 SUBMITTALS

A. Product Data: Identify thermal conductivity, thickness, and jackets (both factory and field applied, if any), for each type of product indicated.

B. Installer Certificates: Signed by the Contractor certifying that installers comply with requirements.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An insulation firm with successful installation experience on projects with mechanical systems insulations similar to that required for this project.

B. Fire-Test-Response Characteristics: As determined by testing materials identical to those specified in this Section according to ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and sealer and cement material containers with appropriate markings of applicable testing and inspecting agency.
   1. Insulation Installed Indoors: Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Ship insulation materials in containers marked by Manufacturer with appropriate ASTM specification designation, type and grade, and maximum use temperature.

1.6 COORDINATION

A. Coordinate size and location of supports, hangers, and insulation shields specified in Division 23 Section, "Hangers and Supports."

B. Coordinate clearance requirements with Piping Installer for insulation application.

C. Coordinate installation and testing of heat tracing.

1.7 SCHEDULING

A. Schedule insulation application after testing piping systems and, where required, after installing and testing heat-trace tape. Insulation application may begin on segments of piping that have satisfactory test results.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Firms regularly engaged in the manufacture of piping insulation products, of types and sizes required, whose products have been in satisfactory use in similar service.

2.2 INSULATION MATERIALS

A. Mineral-Fiber Insulation: Glass fibers bonded with a thermosetting resin complying with the following:

1. Preformed Pipe Insulation: Minimum 4 pound density, 0.23 maximum k factor at 75 degrees F mean temperature, with factory-applied, all-purpose, vapor-retarder jacket.
2. Blanket Insulation: Minimum 3/4 pound density 0.3 maximum k factor at 75 degrees F mean temperature, without facing.
3. Insulation Accessories: Provide staples, bands, wires, cement, tape, anchors, corner angles, and similar accessories as recommended by the insulation manufacturer for the applications indicated.
4. Insulation Compounds: Provide cements, adhesives, coatings, sealers, protective finishes, and similar compounds as recommended by the insulation manufacturer for the applications indicated.
5. Lagging Adhesive: Foster Sealfas Coating 30-36, Insul. Coustic I-C 102, St. Clair Rubber Co. Z41A, or approved equal.

B. Flexible Elastomeric Thermal Insulation: Closed-cell, sponge- or expanded-rubber materials, with smooth skin on both sides. Thermal conductivity 0.30 average maximum at 75 degrees F.

1. Adhesive: As recommended by insulation material manufacturer.

C. Cellular-Glass Insulation: Inorganic, foamed, or cellulated glass, annealed, rigid, hermetically sealed cells, incombustible.

1. Preformed Pipe Insulation, Without Jacket: Comply with ASTM C 552, Type II, Class I.

2.3 FIELD-APPLIED JACKETS

A. PVC Jacket: High-impact, ultraviolet-resistant PVC; 20 mils (0.5 mm) thick; roll stock ready for shop or field cutting and forming.

1. Adhesive: As recommended by Insulation Material Manufacturer.
2. PVC Jacket Color: White.

B. Standard PVC Fitting Covers: Factory-fabricated fitting covers manufactured from 20 mil (0.5 mm) thick, high-impact, ultraviolet-resistant PVC.

1. Shapes: 45 and 90 degree, short- and long-radius elbows, tees, valves, flanges, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories for the disabled.
2. Adhesive: As recommended by insulation material manufacturer.

C. Underground jacketing shall be PITTWRAP CW Plus Jacketing, a 50 mil (1.2 mm) thick self-sealing modified bituminous membrane consisting of a polymer modified bituminous compound reinforced with a glass fabric and a 1 mil (0.2mm) aluminum top film and release paper backing.

2.4 ACCESSORIES AND ATTACHMENTS

A. Glass Cloth and Tape: Woven glass-fiber fabrics, plain weave, presized a minimum of 8 oz./sq. yd. (270 g/sq. meter).

1. Tape Width: 4 inches (100 mm).

B. Bands: 3/4 inch (19 mm) wide, in one of the following materials compatible with jacket:

1. Stainless Steel: Type 304; 0.020 inch (0.5 mm) thick.

C. Wire: 062 inch (1.6 mm), soft-annealed, stainless steel.

2.5 VAPOR RETARDERS

A. Mastics: Materials recommended by Insulation Material Manufacturer that are compatible with insulation materials, jackets, and substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

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

3.2 PREPARATION

A. Surface Preparation: Clean and dry pipe and fitting surfaces. Remove materials that will adversely affect insulation application.

3.3 GENERAL APPLICATION REQUIREMENTS

A. Apply insulation materials, accessories, and finishes according to the Manufacturer's written instructions; with smooth, straight, and even surfaces; free of voids throughout the length of piping, including fittings, valves, and specialties.

B. Refer to schedules at the end of this Section for materials, forms, jackets, and thicknesses required for each piping system.

C. Use accessories compatible with insulation materials and suitable for the service. Use accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Apply insulation with longitudinal seams at top and bottom of horizontal pipe runs.

E. Apply multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Seal joints and seams with vapor-retarder mastic on insulation indicated to receive a vapor retarder.

H. Keep insulation materials dry during application and finishing.

I. Apply insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by the insulation material manufacturer.

J. Apply insulation with the least number of joints practical.

K. Apply insulation over fittings, valves, and specialties, with continuous thermal and vapor-retarder integrity, unless otherwise indicated. Refer to special instructions for applying insulation over fittings, valves, and specialties.

L. Hangers and Anchors: Where vapor retarder is indicated, seal penetrations in insulation at hangers, supports, and other projections with vapor-retarder mastic.

1. Apply insulation continuously through hangers and sleeves. All hangers and supports shall be external of insulation.
2. Install insert materials and apply insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by the insulation material manufacturer.

3. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect the jacket from tear or puncture by the hanger, support, and shield.

M. Insulation Terminations: For insulation application where vapor retarders are indicated, taper insulation ends. Seal tapered ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.

N. Apply adhesives and mastics at the Manufacturer's recommended coverage rate.

O. Apply insulation with integral jackets as follows:

1. Pull jacket tight and smooth.
2. Circumferential Joints: Cover with 3 inch (75 mm) wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip and spaced 4 inches (100 mm) o.c.
3. Longitudinal Seams: Overlap jacket seams at least 1-1/2 inches (40 mm). Apply insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches (100 mm) o.c.
   a. Exception: Do not staple longitudinal laps on insulation having a vapor retarder.
4. Vapor-Retarder Mastics: Where vapor retarders are indicated, apply mastic on seams and joints and at ends adjacent to flanges, unions, valves, and fittings.
5. At penetrations in jackets for thermometers and pressure gages, fill and seal voids with vapor-retarder mastic.

P. Comply with MICA Insulation Standards. Insulate valves per Plate No. 14.

Q. Provide removable insulated covers for all balancing valves, temperature/pressure plugs, and any other items that require access. No openings in the insulation or vapor barrier will be permitted on cold lines.

3.4 MINERAL-FIBER INSULATION APPLICATION

A. Apply insulation to straight pipes and tubes as follows:

1. Secure each layer of preformed pipe insulation to pipe with wire, tape, or bands without deforming insulation materials.
2. Where vapor retarders are indicated, seal longitudinal seams and end joints with vapor-retarder mastic. Apply vapor retarder to ends of insulation at intervals of 15 to 20 feet (4.5 to 6 meters) to form a vapor retarder between pipe insulation segments.
3. For insulation with factory-applied jackets with vapor retarders, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by the insulation material manufacturer and seal with vapor-retarder mastic.

B. Apply insulation to flanges as follows:

1. Apply preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation segment the same as overall width of the flange and bolts, plus twice the thickness of the pipe insulation.

3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.
4. Apply canvas jacket material with Manufacturer's recommended adhesive, overlapping seams at least 1 inch (25 mm), and seal joints with vapor-retarder mastic.

C. Apply insulation to fittings and elbows as follows:

1. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to Manufacturer's written instructions.
2. When premolded insulation elbows and fittings are not available, apply mitered sections of pipe insulation to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire, tape, or bands.
3. Cover fittings with standard PVC fitting covers. Secure fitting covers with Manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.

D. Apply insulation to valves and specialties as follows:

1. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to Manufacturer's written instructions.
2. When premolded insulation sections are not available, apply glass-fiber blanket insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation. For check valves, arrange insulation for access to stainer basket without disturbing insulation.
3. Apply insulation to flanges as specified for flange insulation application.
4. Use preformed standard PVC fitting covers for valve sizes where available. Secure fitting covers with Manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.

3.5 FLEXIBLE ELASTOMERIC THERMAL INSULATION APPLICATION

A. Apply insulation to straight pipes and tubes as follows:

1. Follow Manufacturer's written instructions for applying insulation.
2. Seal longitudinal seams and end joints with Manufacturer's recommended adhesive. Cement to avoid openings in insulation that will allow passage of air to the pipe surface.

B. Apply insulation to fittings and elbows as follows:

1. Apply mitered sections of pipe insulation.
2. Secure insulation materials and seal seams with Manufacturer's recommended adhesive. Cement to avoid openings in insulation that will allow passage of air to the pipe surface.

3.6 PIPING SYSTEM APPLICATIONS

A. Insulation materials and thicknesses are specified in schedules at the end of this Section.

3.7 FIELD QUALITY CONTROL

A. Inspection: Perform the following field quality-control inspections, after installing insulation materials, jackets, and finishes, to determine compliance with requirements:

1. Inspect fittings and valves randomly selected by Architect.
2. Remove fitting covers from 5 elbows or 1 percent of elbows, whichever is less, for various pipe sizes.
3. Remove fitting covers from 5 valves or 1 percent of valves, whichever is less, for various pipe sizes.

B. Insulation applications will be considered defective if sample inspection reveals noncompliance with requirements. Remove defective work and replace with new materials according to these Specifications.

C. Reinstall insulation and covers on fittings and valves uncovered for inspection according to these Specifications.

3.8 INSULATION APPLICATION SCHEDULE, GENERAL

A. Refer to insulation application schedules for required insulation materials, vapor retarders, and field-applied jackets.

3.9 EXTERIOR INSULATION APPLICATION SCHEDULE

A. This application schedule is for aboveground insulation outside building.

B. Service: Chilled-water supply and return.

1. Operating Temperature: 35 to 75 degrees F (2 to 24 degrees c).
2. Insulation Material: Mineral fiber.
3. Insulation Thickness: Apply the following insulation thicknesses:

   a. Steel Pipe, 3 inches and Smaller: 1-1/2 inches.
   b. Steel Pipe, 4 inches and Larger: 2 inches.

4. Field-Applied Jacket: Aluminum.
5. Vapor Retarder Required: Yes.
6. Finish: None.

END OF SECTION 23 07 02

SECTION 23 07 16 - EQUIPMENT INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes blanket insulation; insulating cements; field-applied jackets; accessories and attachments; and sealing compounds.

B. Related Sections include Division 23 Section 230702, "Pipe Insulation," for insulation for piping systems.

1.3 SUBMITTALS

A. Product Data: Identify thermal conductivity, thickness, and jackets (both factory and field applied, if any), for each type of product indicated.

B. Installer Certificates: Signed by the Contractor certifying that installers comply with requirements.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Insulation firm with successful installation experience on projects with mechanical systems insulation similar to that required for this project.

B. Fire-Test-Response Characteristics: As determined by testing materials identical to those specified in this Section according to ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and sealer and cement material containers with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less.
2. Insulation Installed Outdoors: Flame-spread rating of 75 or less, and smoke-developed rating of 150 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Ship insulation materials in containers marked by manufacturer with appropriate ASTM specification designation, type and grade, and maximum use temperature.

1.6 COORDINATION

A. Coordinate clearance requirements with equipment Installer for insulation application.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Mineral-Fiber Board Thermal Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IB, without facing and with all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.

B. Mineral-Fiber Blanket Thermal Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II, without facing and with all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.

C. Flexible Elastomeric Thermal Insulation: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type II for sheet materials.

1. Adhesive: As recommended by insulation material manufacturer.

2.2 FIELD-APPLIED JACKETS

A. PVC Jacket: High-impact, ultraviolet-resistant PVC; 20 mils (0.5 mm) thick; roll stock ready for shop or field cutting and forming.

1. Adhesive: As recommended by insulation material manufacturer.
2. PVC Jacket Color: White.

2.3 ACCESSORIES AND ATTACHMENTS

A. Bands: 3/4 inch (19 mm) wide, in one of the following materials compatible with jacket:

1. Stainless Steel: ASTM A 666, Type 304; 0.020 inch (0.5 mm) thick.

B. Adhesive-Attached Anchor Pins and Speed Washers: Galvanized steel plate, pin, and washer manufactured for attachment to duct and plenum with adhesive. Pin length sufficient for insulation thickness indicated.

1. Adhesive: Recommended by the anchor pin manufacturer as appropriate for surface temperatures of ducts, plenums, and breechings; and to achieve a holding capacity of 100 lb (45 kg) for direct pull perpendicular to the adhered surface.

C. Self-Adhesive Anchor Pins and Speed Washers: Galvanized steel plate, pin, and washer manufactured for attachment to duct and plenum with adhesive. Pin length sufficient for insulation thickness indicated.

2.4 VAPOR RETARDERS

A. Mastics: Materials recommended by insulation material manufacturer that are compatible with insulation materials, jackets, and substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

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

3.2 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.3 GENERAL APPLICATION REQUIREMENTS

A. Apply insulation materials, accessories, and finishes according to the manufacturer's written instructions; with smooth, straight, and even surfaces; and free of voids throughout the length of equipment.

B. Refer to schedules at the end of this Section for materials, forms, jackets, and thicknesses required for each equipment system.

C. Use accessories compatible with insulation materials and suitable for the service. Use accessories that do not corrode, soften, or otherwise attack insulation or jacket in either the wet or dry state.

D. Apply multiple layers of insulation with longitudinal and end seams staggered.

E. Seal joints and seams with vapor-retarder mastic on insulation indicated to receive a vapor retarder.

F. Keep insulation materials dry during application and finishing.

G. Apply insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by the insulation material manufacturer.

H. Apply insulation with the least number of joints practical.

I. Apply insulation over fittings and specialties, with continuous thermal and vapor-retarder integrity, unless otherwise indicated.

J. Hangers and Anchors: Where vapor retarder is indicated, seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic. Apply insulation continuously through hangers and around anchor attachments.

K. Insulation Terminations: For insulation application where vapor retarders are indicated, seal ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.

L. Install vapor-retarder mastic on equipment scheduled to receive vapor retarders. Overlap insulation facing at seams and seal with vapor-retarder mastic and pressure-sensitive tape having same facing as insulation. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-retarder seal.

M. Insulate the following indoor equipment:

1. Chilled and heated water and pumps.
2. Chilled and heated water air separators and expansion tanks.

N. Omit insulation from the following:

1. Testing agency labels and stamps.
2. Nameplates and data plates.
3. Handholes.
4. Cleanouts.

3.4 FIELD-APPLIED JACKET APPLICATION

A. PVC Jackets: Apply jacket with longitudinal seams along top and bottom of tanks and vessels for horizontal applications. Secure and seal seams and end joints with manufacturer's welding adhesive.

1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along the seam and joint edge.

3.5 EQUIPMENT APPLICATIONS

A. Insulation materials and thicknesses are specified in the Schedules at the end of this Section.

B. Materials and thicknesses for systems listed below are specified in the Schedules at the end of this Section.

3.6 INTERIOR TANK AND VESSEL INSULATION APPLICATION SCHEDULE

A. Equipment: Chilled water pumps.

1. Operating Temperature: 400 degrees F.
2. Insulation Material: Rigid mineral fiber.
3. Insulation Thickness: 2 inch.
4. Field-Applied Jacket: PVC.

END OF SECTION 23 07 16

SECTION 23 09 23 - BUILDING MANAGEMENT AND CONTROL SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section describes the Enterprise Level Energy Management Systems (ELEMS) scope of work for the project. This section also coordinates the responsibilities of the Mechanical and Electrical trade contractors pertaining to control products or systems, furnished by each trade that will be integrated by this Division.

B. All labor, material, equipment, programming, graphics and software not specifically referred to herein or on the plans, that is required to meet the functional intent of this specification, shall be provided without additional cost to the Owner.

C. Direct digital controllers for all chillers, pumps, fans, fan coils, and AHU's shall be furnished, installed and wired by the Division 23 09 23 contractor.

D. The system network will be BACnet/MSTP or BACnet/IP.

1.3 QUALITY ASSURANCE

A. Codes and Approvals:

1. The complete BMCS installation shall be in strict accordance to the national and local electrical codes and the electrical Section of these specifications. All devices designed for or used in line voltage applications shall be UL listed. All microprocessor based remote and central devices connecting onto the primary bus (including link devices) shall be UL-Listed.
2. The system shall comply with NFPA 90A Air Conditioning and 90B Warm Air Heating, Air Conditioning.

B. Provide satisfactory operation without damage at 110 percent above and 85 percent below rated voltage and at 3 hertz variation in line frequency. Provide static, transient, and short circuit protection on all inputs and outputs. Communication lines shall be protected against incorrect wiring, static transients, and induced magnetic interference. All bus connected devices shall be a.c. coupled, or equivalent, so that any single device failure will not disrupt or halt bus communication.

C. Acceptance: The BMCS Contractor shall completely check out, calibrate, and test all connected hardware and software to insure that the system performs in accordance with the approved Specifications and sequences of operations approved.

1. Witnessed acceptance demonstration shall display and demonstrate each type of data entry to show site specific customizing capability; demonstrate parameter changes; execute digital and analog commands; and demonstrate DDC loop stability via trend of inputs and outputs.
2. The Control Contractor shall furnish software for the laptop computer to enable service of the control system and for use by the balancing Contractor during system balancing. The Control Contractor shall provide the balancing Contractor up to four hours training on the use of this software in order to exercise actuators and enter calibration and balancing parameters. Additional training or assistance required by the balancing Contractor shall be contracted directly with the Control Contractor by the balancing Contractor.

D. Submittals:

1. Submit 5 complete sets of documentation in the following phased delivery schedule:

    a. Technician current license for Tridium Niagara Web Supervisor.
    b. Valve and damper schedules
    c. Equipment data cut sheets
    d. System schematics, including:

        1) Sequence of operations
        2) Point names
        3) Point addresses
        4) Point to point wiring
        5) Interface wiring diagrams
        6) Panel layouts
        7) System riser diagrams

    e. AutoCAD compatible or equal as-built drawings

2. Upon project completion, provide owner with BMCS programming software and submit operation and maintenance manuals, consisting of the following:

    a. Manufacturer's equipment parts list of all functional components of the system
    b. Description of sequence of operations
    c. As-Built interconnection wiring diagrams
    d. User’s documentation containing product, system architectural and programming information.
    e. Trunk cable schematic showing remote electronic panel locations, and all trunk data
    f. List of connected data points, including panels to which they are connected and input device
    g. Conduit routing diagrams
    h. Copy of the warranty
    i. Operating and maintenance cautions and instructions
    j. Recommended spare parts list

E. Training: All training shall be by the BMCS Contractor and shall utilize Operator's Manuals and as-built documentation.

1. Operator training for the project shall include two (2) eight-hour session encompassing modifying text and graphics, sequence of operation review, selection of all displays and reports, use of all specified OWS functions, troubleshooting of sensors (determining bad sensors), and password assignment and modification

a. This training session shall be conducted at system completion.

F. Warranty:

1. Equipment, materials and workmanship incorporated into the work shall be warranted for a period of two years from the time of system acceptance.
2. Within this period, upon notice by the Owner, any defects in the work provided under this section due to faulty materials, methods of installation or workmanship shall be promptly (within 48 hours after receipt of notice) repaired or replaced by the Division 23 contractor at no expense to the Owner.

1.4 BUILDING MANAGEMENT AND CONTROL SYSTEM

A. The Building Management and Control System (BMCS) as provided in the Division shall be Based on the Niagara Framework (or "Niagara"), a Java-based framework. Niagara provides an open automation infrastructure that integrates diverse systems and devices (regardless of manufacturer, communication standard or software) into a unified platform that can be easily managed in real time over the Internet using a standard Web browser. Systems not developed on the Niagara Framework platform are unacceptable.

B. Manufacturers: Provide BMCS software and components by one of the following manufacturers;

1. Johnson Controls, Inc.
2. Siemens

C. The Building Management and Control System (BMCS) shall be comprised of Network Area Controller or Controllers (NAC) within facility. The NAC shall connect to the owner's wide area network. Access to the system, either locally in each building, or remotely from a central site or sites, shall be accomplished through standard Web browsers, via the Internet and/or local area network. Each NAC shall communicate to BACnet control devices provided under Division 23.

D. Provide manufacturers most recent software.

E. Manufacturer: Firms regularly engaged in manufacture of electric-electronic temperature control equipment, of types and sizes which are similar to required equipment, and which have been in satisfactory use in similar service for not less than 5 years. Manufacturer shall have an established factory authorized service organization in Shreveport, Louisiana.

F. Installer: A firm specializing and experienced in electric-electronic control system installations for not less than 5 years.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. General: Provide electric-electronic temperature control products in sizes and capacities indicated, consisting of valves, dampers, thermostats, sensors, controllers, and other components as required for complete installation. Except as otherwise indicated, provide Manufacturer's standard temperature control system components as indicated by published product information, designed and constructed as recommended by Manufacturer. Provide temperature control systems with the following functional and construction features as indicated.

B. Control Valves: Provide factory-fabricated electrical control valves of type, body material and pressure class indicated. Where type or body material is not indicated, provide selection as determined by Manufacturer for installation requirements and pressure class, based on maximum pressure and temperature rating of piping system. Except as otherwise indicated, provide valves which mate and match material of connecting piping. Equip control valves with control valve motors, and with proper shutoff ratings for each individual application. All valves shall be proportional control, except for fan coil units which shall be on/off.

C. Water Service Valves: Equal percentage characteristics with range of 50 to 1.

D. Single-Seated Valves: Cage type trim, providing seating and guiding surfaces for plug on "top and bottom" guided plugs.

E. Valve Trim and Stems: Polished stainless steel for all sizes, trim as recommended by Manufacturer.

F. Packing: Spring-loaded Teflon, self-adjusting.

G. All new controllers connected to the Niagara network will not have additional software required to perform any programming functions. All programming will be accomplished through the Niagara Workbench.

H. All Applied controllers shall Bacnet/IP controllers and will require an IT connection furnished by the installing contractor and that must be coordinated with the owners IT department.

2.2 JACE EQUIMENT CONTROLLER (JEC)

A. Provide an IP based Equipment controller based on the Tridium the NiagaraAX Framework® JACE and Integral IO Modules. The JACE Equipment Controller (JEC) shall be an embedded controller/server platform designed for monitoring and control applications. The unit shall support integrated control, supervision, data logging,

alarming, and scheduling, 34 points of IO, with Internet connectivity and web serving capabilities. The JEC shall support all Niagara bases programming tools and integrate with Niagara based supervisory servers utilizing the Fox protocol.

B. The JEC shall provide applications for controlling and monitoring building systems including HVAC equipment, lighting, and meters. An integral 34 point IO module shall be provided with each controller. The Input/Output module shall provide 34 points for local control. In addition to local control, the JEC shall be licensed for up to 5 remote devices that can come into the controller via Lon, BACnet, or Modbus. The JEC shall serve data and rich graphical displays to a standard web browser via an Ethernet LAN or remotely over the Internet. Where specified, AX Supervisor™ software can be used to aggregate information (real-time data, history, alarms, etc.) from large numbers of JECs into a single unified application to manage global control functions, support data passing over multiple networks, connect to enterprise level software applications, and host multiple, simultaneous client workstations connected over the local network, the Internet.

C. Features shall include

1. Web User interface shall serve rich presentations and live data to any browser
2. Supports simultaneous stand-alone control, energy management, and multi-protocol integration
3. BTL® listed when BACnet driver is used – shall comply with B-BC (BACnet Building Controller)
4. Built-in 24 volt AC/DC input power supply
5. Support for 2 additional onboard 16 point IO modules and 4 additional 16 point remote IO modules
6. Pre-Licensed for five total remote devices – integrated via BACnet
7. Din Rail mountable for quick installation
8. IO-34 - 34 Point I/O Module

    a. 16 Universal Inputs (Type 3 (10k) Thermistors, 0-1000 ohm, 0-10 volts, 0-20 mA with external resistor)
    b. 10 relay outputs (Form A contacts, 24 VAC @.5 amp rated)
    c. 8 analog outputs (0-10 vlt DC)

9. Communications

    a. 2 Ethernet Ports – 10/100 Mbps (RJ-45 Connectors)
    b. 1 RS 232 Port (RJ-45 Connector)
    c. 1 RS 485 non isolated port (Screw Connector on base board)
    d. 2 card slots for optional communication cards

D. Provide all necessary hardware, software, and programming for the specified sequence of operation, graphics, alarms, histories, and trends. Provide JEC with the Tridium open NIC for connection by any Niagara AX based engineering tool.

2.3 SENSORS

A. System and Sensor Accuracy: The system shall maintain an end to end accuracy for two years from sensor to diagnostic display for the applications specified.

1. Outside Air (OA) temperature with a range of minus 40 to plus 130 degrees F, plus or minus 2.0 degrees F, with a sub-range of plus 30 to 100 degrees F, plus or minus 1.0 degree F.
2. Water temperature with a range of 30 to 100 degrees F, plus or minus 0.75 degrees F; the range of 100 to 250 degrees F within plus or minus 2.0 degrees F

B. Temperature Sensors: Temperature sensors shall be resistance temperature detectors (RTD's). Sensing element shall be nickel with common reference of 1000 ohms at 70 degrees F. Provide sensing elements as follows:

1. Liquid immersion RTD shall be provided with brass thermowell. Length of sensor and thermowell shall be selected based on diameter of pipe to facilitate accurate, reliable, homogeneous and steady temperature sensing of the liquids.
2. Room temperature sensors shall have setpoint adjusters with no thermometer.

C. Current Sensing Status Relays: The on and off status of each pump motor and fan motor shall be indicated via a current sensing relay and current transformer on one of the power legs to the associated motor. Relay shall provide dry contact closure with motor on but shall indicate open contact whenever fan belt breaks or if the motor fails to run. Current sensing relay and start/stop relay shall not be combination type.

2.4 Valve and Damper Operators:

A. Valve operators shall be electronic type. Operator shall be designed for maximum pressure differential or torque required (plus 50 percent) across the valve. Valve operators shall be complete with feedback position indicator for interface to DDC controller. Operators shall be spring return type to fail safe in event of signal or power loss.

2.5 Local Control Panels:

A. Provide a central control panel located in the mechanical room with suitable brackets for wall mounting. Locate panel adjacent to systems served.
B. Provide standard steel cabinets as required to contain temperature controllers, relays, switches, and similar devices, except limit controllers and other devices excluded in sequence of operations. Provide full-enclosure cabinets with painted gray finish.

PART 3 - EXECUTION

3.1 INSTALLATION AND WIRING

A. General: Install system and materials in accordance with Manufacturer's instructions and roughing-in Drawings and details on Drawings. Mount controllers at convenient locations and heights.

B. Number-code or color-code conductors, excluding those used for local individual room controls, appropriately for future identification and servicing of control system.

C. All wiring, low and line voltage shall be run in conduit. NO EXCEPTIONS

D. The electrical contractor (Div 26) shall furnish all power wiring to electrical starters and motors.

3.2 GRAPHICAL USER INTERFACE

A. Introduction

1. The goal is to provide the end user with a fully functional set of graphics with which to operate, test and trouble shoot their systems with, while still maintaining a standard look and "feel" across all graphics.

B. Base Graphic (Graphic Template)

1. The base of the graphic consists of its background color and title bar. The title bar includes a forward, back, home, schedule, trends, alarm, and help buttons. Outdoor air temperature and humidity (if available) should be on the title bar also.

    a. Standards for the "base" of all graphics should include:

        1) All graphics should be sized to fit nicely on a monitor running 1280x1024 resolution and shall scale to any given resolution.
        2) All graphics should be displayed in Niagara without any scroll bars, when viewed at the resolution listed above.
        3) Display background should be RGB (64, 64, 64) in color.
        4) Display of the frame and navigation tree should be RGB (32, 32, 32) in color.
        5) Interactive navigation tree should be located on the left hand side of every graphic page.

2. The navigation tree graphic should:

    a. Select a unit or summery to view
    b. Customer logo at the top
    c. Controls Contractor logo at the bottom

3. The Unit Name and Job Name should be in Tahoma, 12pt Bold, Black.

C. Mechanical Equipment

1. All mechanical equipment graphics should match that being used. IE: absorption vs. centrifugal chillers; plate-and-frame vs. tube heat exchangers; sectional vs. fire tube boilers; air-to-air vs. heat wheel heat exchangers.

D. Sensors

1. All duct sensors, probes and meters of any kind should be animated with a "red" color around the text if the device is in the alarm state and the alarm state is available. This is especially important for freeze-stats and smoke detectors.

E. Floor Plan Graphics

1. Floor plan graphics consist of 4 major parts:

   a. Base Graphic
   b. 3D Floor Plans
   c. Data
   d. Labeling/Legend

2. The base graphic will follow the standards for "Base Graphics" detailed earlier in this document. The actual floor plan on a graphic should be comprised of 3 parts:

   a. Floor Plan Image: This should be a 3D CAD drawing which has been converted to a png image (png images support the "invisible" color). Specific layers of the CAD drawings should be turned off to leave only building wall, door, window and major partitions visible. The color of all visible layers should be Dark Grey RGB (105,105,105)
   b. Room Numbering/Labeling

      1) Labels shall include box/room number and change color on a gradient scale up and down in 1 degree increments with dark blue being coldest and red being the hottest.

   c. Zoning; this helps visually determine what equipment is serving an area and if the equipment is maintaining a suitable comfort level

3. Data displayed on a floor plan graphic will utilize a custom created dynamic shape. This shape will display space temperature, equipment name and include a link to the equipment. As you place the cursor over a zone, the name of the zone will be located in the frame above the floor plan and can also be edited by the end user. In the event this data is not available for a specific zone, the dynamic shape should not be placed within that space. Upon clicking on the link, the user will navigate to the specific equipment for that zone. All detail pages will utilize the template graphics for terminal units as discussed earlier in this document.

3.3 FINAL ADJUSTMENTS

A. After completion of installation, adjust thermostats, control valves, motors, and similar equipment provided as work of this section.

B. Final adjustment shall be performed by specially trained personnel in direct employ of manufacturer (or factory authorized installer) of primary temperature control system.

Provide certification that all work has been tested, balanced, and adjusted and that all systems are working as intended.

3.4 POINTS LIST

A. Refer to the Mechanical Drawings.

3.5 SEQUENCE OF OPERATIONS

A. Refer to the Mechanical Drawings.

END OF SECTION 23 09 23

SECTION 23 21 13 - HYDRONIC PIPING

PART 1 -GENERAL

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

B. SUMMARY: This Section includes piping, special-duty valves, and hydronic specialties for hot-water heating and chilled-water cooling; makeup water for these systems; and blowdown drain lines; and condensate drain piping.

1. Related Sections include the following:

a. Division 23 Section 23 01 00, "Basic Mechanical Materials and Methods," for general piping materials and installation requirements.
b. Division 23 Section 23 05 29, "Hangers and Supports," for pipe supports, product descriptions, and installation requirements.
c. Division 23 Section 23 05 20, "Valves," for general-duty gate, globe, ball, butterfly, and check valves.
d. Division 23 Section 23 05 19, "Meters and Gages," for thermometers and pressure gages.
e. Division 23 Section 23 05 53, "Mechanical Identification," for labeling and identifying hydronic piping.
f. Division 23 Section 23 09 23, "Building Management and Control Systems," for temperature-control valves and sensors.

C. SUBMITTALS:

1. Product Data: For each type of hydronic specialty.
2. Welding Certificates: Copies of certificates for welding procedures and personnel.
3. Field Test Reports: Written reports of tests specified in Part 3 of this Section. Include the following:

a. Test procedures used.
b. Test results that comply with requirements.
c. Failed test results and corrective action taken to achieve requirements.

4. Maintenance Data: For hydronic specialties and special-duty valves to include in maintenance manuals specified in Division 1.

D. QUALITY ASSURANCE:

1. Welding: Qualify processes and operators according to the ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
2. ASME Compliance: Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation. Safety valves and pressure vessels shall bear the appropriate ASME label. Fabricate and stamp air separators and expansion tanks to comply with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

E. COORDINATION:

1. Coordinate layout and installation of hydronic piping and suspension system components with HVAC equipment and existing construction.
2. Coordinate pipe fitting pressure classes with products specified in related Sections.
3. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into base.
4. Coordinate installation of pipe sleeves for penetrations through floor assemblies. Coordinate with requirements for firestopping.

PART 2 -PRODUCTS

A. BASIC IDENTIFICATION: Provide identification complying with Division 23 Section 23 05 53, "Mechanical Identification," in accordance with the following listing:

1. Piping: Plastic pipe markers.
2. Valves: Plastic valve tags.

B. MANUFACTURERS: Subject to compliance with requirements, provide products by one of the following or approved equivalent:

1. Calibrated Balancing Valves:

a. Armstrong Pumps, Inc., CBV Series
b. Flow Design, Inc., Model AS
c. ITT Bell & Gossett; ITT Fluid Technology Corp., CB Series
d. Taco, Inc., CS Series
e. Wheatley, BV Series
f. Nexus, XB Series
g. Griswold, CPPS Series

C. PIPING MATERIALS: Comply with the piping material schedule on the Drawings for product requirements of piping materials. For each system, provide the piping materials indicated including pipe, tube, fittings, hangers, supports, anchors, valves, and accessories. Where more than one type is indicated, selection is Installer's option. Provide materials and equipment indicated and as required for complete and functioning systems. Where type is not indicated, provide materials and equipment to comply with function and operation requirements.

D. VALVES:

1. Gate, globe, and check valves are specified in Division 23.
2. Refer to Part 3 "Valve Applications" Article for applications of each valve.
3. Calibrated Balancing Valves, NPS 2 (DN 50) and Smaller: Bronze body, ball type, 125 psig (860 kPa) working pressure, 250 degrees F (121 degrees C) maximum operating temperature, and having threaded ends. Valves shall have calibrated orifice or venturi, connections for portable differential pressure meter with integral seals, and be equipped with a memory stop to retain set position.
4. Calibrated Balancing Valves, NPS 2-1/2 (DN 65) and Larger: Cast-iron or steel body, ball type, 125 psig (860 kPa) working pressure, 250 degrees F (121 degrees C) maximum operating temperature, and having flanged or grooved connections. Valves shall have

calibrated orifice or venturi, connections for portable differential pressure meter with integral seals, and be equipped with a memory stop to retain set position.

E. HYDRONIC SPECIALTIES:

1. Manual Air Vent: Bronze body and nonferrous internal parts; 150 psig (1035 kPa) working pressure; 225 degrees F (107 degrees C) operating temperature; manually operated with screwdriver or thumbscrew; with NPS 1/8 (DN 6) discharge connection and NPS 1/2 (DN 15) inlet connection.
2. Automatic Air Vent: Designed to vent automatically with float principle; bronze body and nonferrous internal parts; 150 psig (1035 kPa) working pressure; 240 degrees F (116 degrees C) operating temperature; with NPS 1/4 (DN 8) discharge connection and NPS 1/2 (DN 15) inlet connection.
3. Y-Pattern Strainers: 125 psig (860 kPa) working pressure; cast-iron body, flanged ends for NPS 2-1/2 (DN 65) and larger, threaded connections for NPS 2 (DN 50) and smaller, bolted cover, perforated stainless-steel basket, and bottom drain connection.
4. Spherical, Rubber, Flexible Connectors: Fiber-reinforced rubber body with steel flanges drilled to align with Classes 150 and 300 steel flanges; operating temperatures up to 250 degrees F (121 degrees C) and pressures up to 150 psig (1035 kPa).

PART 3 -EXECUTION

A. INSTALLATION OF BASIC IDENTIFICATION: Install mechanical identification in accordance with Division 23 Section 23 05 53, "Mechanical Identification."

B. VALVE APPLICATIONS:

1. General-Duty Valve Applications: Unless otherwise indicated, use the following valve types:

   a. Shutoff Duty: Gate valves.
   b. Throttling Duty: Globe valves.

2. Install shutoff duty valves at each branch connection to supply mains, at supply connection to each piece of equipment, unless only one piece of equipment is connected in the branch line. Install throttling duty valves at each branch connection to return mains, at return connections to each piece of equipment, and elsewhere as indicated.
3. Install calibrated balancing valves in the return water line of each heating or cooling element and elsewhere as required to facilitate system balancing.
4. Install check valves at each pump discharge and elsewhere as required to control flow direction.
5. Install safety valves where indicated and elsewhere as required by the ASME Boiler and Pressure Vessel Code. Install safety-valve discharge piping, without valves, to floor. Comply with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, for installation requirements.
6. Install pressure-reducing valves where indicated and elsewhere as required to regulate system pressure.

C. PIPING INSTALLATIONS: Refer to Division 23 Section 23 01 00, "Basic Mechanical Materials and Methods," for basic piping installation requirements.

1. Install groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.
2. Install drains, consisting of a tee fitting, NPS 3/4 (DN 20) ball valve, and short NPS 3/4 (DN 20) threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.
3. Install piping at a uniform grade of 0.2 percent upward in direction of flow.
4. Reduce pipe sizes using eccentric reducer fitting installed with level side up.
5. Unless otherwise indicated, install branch connections to mains using tee fittings in main pipe, with the takeoff coming out the bottom of the main pipe. For up-feed risers, install the takeoff coming out the top of the main pipe.
6. Install strainers on supply side of each control valve, pressure-reducing valve, solenoid valve, pump, and elsewhere as indicated. Install NPS 3/4 (DN 20) nipple and ball valve in blowdown connection of strainers NPS 2 (DN 50) and larger. Match size of strainer blowoff connection for strainers smaller than NPS 2 (DN 50).

D. HANGERS AND SUPPORTS: Hanger, support, and anchor devices are specified in Division 23 Section 23 05 29, "Hangers and Supports." Comply with requirements below for maximum spacing of supports. All hangers and supports shall be external of insulation.

1. Install hangers for steel piping with the following maximum spacing and minimum rod sizes:

    a. NPS 3/4 (DN 20): Maximum span, 7 feet (2.1 meters); minimum rod size, 1/4 inch (6.4 mm).
    b. NPS 1 (DN 25): Maximum span, 7 feet (2.1 meters); minimum rod size, 1/4 inch (6.4 mm).
    c. NPS 1-1/2 (DN 40): Maximum span, 9 feet (2.7 meters); minimum rod size, 3/8 inch (10 mm).
    d. NPS 2 (DN 50): Maximum span, 10 feet (3 meters); minimum rod size, 3/8 inch (10 mm).
    e. NPS 2-1/2 (DN 65): Maximum span, 11 feet (3.4 meters); minimum rod size, 3/8 inch (10 mm).
    f. NPS 3 (DN 80): Maximum span, 12 feet (3.7 meters); minimum rod size, 3/8 inch (10 mm).
    g. NPS 4 (DN 100): Maximum span, 14 feet (4.3 meters); minimum rod size, 1/2 inch (13 mm).
    h. NPS 6 (DN 150): Maximum span, 17 feet (5.2 meters); minimum rod size, 1/2 inch (13 mm).
    i. NPS 8 (DN 200): Maximum span, 19 feet (5.8 meters); minimum rod size, 5/8 inch (16 mm).
    j. NPS 10 (DN 250): Maximum span, 20 feet (6.1 meters); minimum rod size, 3/4 inch (19 mm).
    k. NPS 12 (DN 300): Maximum span, 23 feet (7 meters); minimum rod size, 7/8 inch (22 mm).

2. Support vertical runs at roof and at each floor.

E. PIPE JOINT CONSTRUCTION: Refer to Division 23 Section 23 01 00, "Basic Mechanical Materials and Methods," for joint construction requirements for threaded, welded, and flanged joints in steel piping.

F. HYDRONIC SPECIALTIES INSTALLATION:

1. Install manual air vents at high points in piping, at heat-transfer coils, and elsewhere as required for system air venting.
2. Install automatic air vents in mechanical equipment rooms only at high points of system piping, at heat-transfer coils, and elsewhere as required for system air venting.
3. Install combination air separator and strainer in pump suction lines. Install piping to compression tank with a 2 percent upward slope toward tank. Install blowdown piping with gate valve; extend to nearest drain.
4. Install bypass chemical feeders in each hydronic system where indicated, in upright position with top of funnel not more than 48 inches (1200 mm) above floor. Install feeder in bypass line, off main, using globe valves on each side of feeder and in the main between bypass connections. Pipe drain, with ball valve, to nearest equipment drain.
5. Install expansion tanks on floor. Vent and purge air from hydronic system, and ensure tank is properly charged with air to suit system design requirements.

G. TERMINAL EQUIPMENT CONNECTIONS:

1. Size for supply and return piping connections shall be same as for equipment connections.
2. Install control valves in accessible locations close to connected equipment.
3. Install bypass piping with globe valve around control valve. If multiple, parallel control valves are installed, only one bypass is required.
4. Install ports for pressure and temperature gages at coil inlet connections.

H. FIELD QUALITY CONTROL:

1. Prepare hydronic piping according to ASME B31.9 and as follows:

    a. Leave joints, including welds, uninsulated and exposed for examination during test.
    b. Provide temporary restraints for expansion joints that cannot sustain reactions due to test pressure. If temporary restraints are impractical, isolate expansion joints from testing.
    c. Flush system with clean water. Clean strainers.
    d. Isolate equipment from piping. If a valve is used to isolate equipment, its closure shall be capable of sealing against test pressure without damage to valve. Install blinds in flanged joints to isolate equipment.
    e. Install safety valve, set at a pressure no more than one-third higher than test pressure, to protect against damage by expanding liquid or other source of overpressure during test.

2. Perform the following tests on hydronic piping:

    a. Use ambient temperature water as a testing medium unless there is risk of damage due to freezing. Another liquid that is safe for workers and compatible with piping may be used.
    b. While filling system, use vents installed at high points of system to release trapped air. Use drains installed at low points for complete draining of liquid.
    c. Check expansion tanks to determine that they are not air bound and that system is full of water.

d. Subject piping system to hydrostatic test pressure that is not less than 1.5 times the design pressure. Test pressure shall not exceed maximum pressure for any vessel, pump, valve, or other component in system under test. Verify that stress due to pressure at bottom of vertical runs does not exceed either 90 percent of specified minimum yield strength or 1.7 times "SE" value in Appendix A of ASME B31.9, "Building Services Piping."
e. After hydrostatic test pressure has been applied for at least 10 minutes, examine piping, joints, and connections for leakage. Eliminate leaks by tightening, repairing, or replacing components, and repeat hydrostatic test until there are no leaks.
f. Prepare written report of testing.

I. ADJUSTING:

1. Mark calibrated nameplates of pump discharge valves after hydronic system balancing has been completed, to permanently indicate final balanced position.
2. Perform these adjustments before operating the system:

a. Open valves to fully open position. Close coil bypass valves.
b. Check pump for proper direction of rotation.
c. Set automatic fill valves for required system pressure.
d. Check air vents at high points of system and determine if all are installed and operating freely (automatic type), or bleed air completely (manual type).
e. Set temperature controls so all coils are calling for full flow.
f. Check operation of automatic bypass valves.
g. Check and set operating temperatures of converter to design requirements.
h. Lubricate motors and bearings.

J. CLEANING: Flush hydronic piping systems with clean water. Remove and clean or replace strainer screens. After cleaning and flushing hydronic piping systems, but before balancing, remove disposable fine-mesh strainers in pump suction diffusers.

END OF SECTION 23 21 13

SECTION 23 21 23 - HYDRONIC PUMPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following categories of hydronic pumps for hydronic systems:
   1. End Suction pumps.
   2. Pump specialty fittings.
   3. Variable Frequency Drives.

1.3 SUBMITTALS

A. Product Data: Include certified performance curves and rated capacities; shipping, installed, and operating weights; furnished specialties; final impeller dimensions; and accessories for each type of product indicated. Indicate pump's operating point on curves.

B. Shop Drawings: Show pump layout and connections. Include Setting Drawings with templates for installing foundation and anchor bolts and other anchorages.
   1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring.

C. Maintenance Data: For pumps to include in maintenance manuals specified in Division 1.

1.4 QUALITY ASSURANCE

A. UL Compliance: Fabricate and label pumps to comply with UL 778, "Motor-Operated Water Pumps," for construction requirements.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Manufacturer's Preparation for Shipping: Clean flanges and exposed machined metal surfaces and treat with anticorrosion compound after assembly and testing. Protect flanges, pipe openings, and nozzles with wooden flange covers or with screwed-in plugs.

B. Store pumps in dry location.

C. Retain protective covers for flanges and protective coatings during storage.

D. Protect bearings and couplings against damage from sand, grit, and other foreign matter.

E. Comply with pump manufacturer's written rigging instructions.

1.6 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 3 Section "Cast-in-Place Concrete."

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Mechanical Seals: One mechanical seal for each pump.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equivalent:

   1. End Suction Pumps.
   2. Bell and Gossett ITT; Div. of ITT Fluid Technology Corp., 1510 Series.
   3. TACO FI Series.
   4. Patterson HVES Series.
   5. Armstrong 4600 Series.

B. Suction Diffusers:

   1. Bell & Gossett ITT; Div. of ITT Fluid Technology Corp., "Suction Diffuser".
   2. Taco, "Suction Diffuser".
   3. Elbi, CISD Series.
   4. Patterson SD Series.
   5. Armstrong SG Series.

C. Triple-Duty Valves:

   1. Bell & Gossett ITT; Div. Of ITT Fluid Technology Corp., Model 3DS-S.
   2. Taco, Model MPV.
   3. Elbi, ETDV.
   4. Patterson, TSV Series.
   5. Armstrong FTV Series.

D. Variable Frequency Drives

   a. ABB
   b. Danfoss

c. Toshiba

2.2 GENERAL PUMP REQUIREMENTS

A. Pump Units: Factory assembled and tested.

B. Motors: Include built-in, thermal-overload protection and grease-lubricated ball bearings. Select each motor to be nonoverloading over full range of pump performance curve.

2.3 FLEXIBLE-COUPLED, END-SUCTION PUMPS

A. Description: Base-mounted, centrifugal, flexible-coupled, end-suction, single-stage, bronze-fitted, back-pull-out, radially split case design; rated for 175 psig (1200 kPa) minimum working pressure and a continuous water temperature of 225 degrees F (107 degrees C).

a. Casing: Cast iron, with flanged piping connections, drain plug at low point of volute, threaded gage tappings at inlet and outlet connections, and integral feet or other means on volute to support weight of casing and attached piping. Casing shall allow removal and replacement of impeller without disconnecting piping.
b. Impeller: ASTM B 584, cast bronze, statically and dynamically balanced, closed, overhung, single suction, keyed to shaft, and secured by locking cap screw.
c. Wear Rings: Replaceable, bronze casing ring.
d. Shaft and Sleeve: Steel shaft with bronze sleeve.
e. Seals: Mechanical, with carbon-steel rotating ring, stainless-steel spring, ceramic seat, and flexible bellows and gasket.
f. Coupling: A Woods "S", Falk or Thomas "DBZ" coupling shall be provided between the pump and motor. The coupling shall be secured by set screws and 316 stainless steel shaft keys.
g. Coupling Guard: Steel, removable, and attached to mounting frame.
h. Mounting Frame: Welded-steel frame and cross members, factory fabricated from ASTM A 36/A 36M channels and angles. Fabricate for mounting pump casing, coupling guard, and motor. Field-drill motor-mounting holes for field-installed motors.
i. Option: Cast-iron frames are acceptable.
j. Motor: Secured to mounting frame, with adjustable alignment.
k. Motor: TEFL with regreasable ball bearings.

2.5 VARIABLE FREQUENCY DRIVES

A. Provide a pre-wired variable torque package for each pump. This package shall include a vented NEMA 1 enclosure containing the variable speed inverter as well as a by-pass contactor with overload relays and through the door interlock disconnect switch. It shall also include a manual by-pass feature. On the front of the panel shall be mounted: power on light, fault light, start-stop switch, speed meter (calibrated 0 to 100 percent), speed setting potentiometer, manual by-pass switch, and by-pass on light. The inverter shall be compact, high efficiency VVVF transistor inverter type.

B. The speed command signal can be selected from 0 to 5 vdc, 0 to 10 fdc, or 4 to 20 mA by a select switch. Load torque characteristics can be set to either variable torque or constant torque depending on the application by means of a switch. Maximum frequency can be selected by a switch which will establish maximum frequency. Acceleration and deceleration time can be set

digitally up to 15 seconds by means of switches. The setting of the electronic thermal relay is to be done by a dial switch. Protective functions shall be provided with indication pilot lights for over current, motor overload, regenerative over-voltage, instantaneous power failure and load side ground fault.

C. Speed drive inputs and outputs to BMCS system shall be opto-isolated or direct digital interface.

D. The variable frequency ac drives shall be used to control centrifugal pumps. The VFD must be capable of operating with a standard NEMA B design induction motor, with multiple motor operation capability.

E. The VFD shall be of the pulse-width modulated design and shall produce adjustable voltage and adjustable frequency through a two-step process.

F. AC utility power shall be converted to a fixed dc voltage through the use of a full-wave diode bridge. This shall be done to provide an input displacement power factor of .95 and above throughout the entire speed range. VFD's employing a phase-controlled front end will not be acceptable due to the inherent reduction of power factor with speed change (with possible utility power factor penalty) as well as power line notching considerations.

G. The second step shall convert the fixed dc bus voltage to a three-phase adjustable voltage, adjustable frequency output with the use of power transistors in the inverter circuit for high reliability.

H. The VFD shall be capable of operating with the following power sources:

   l. 480 v., 50/60 hz. with a +10 percent, -15 percent line voltage fluctuation.

I. The drive shall be capable of rated operation in an ambient temperature of -10 degrees C to +50 degrees C; with a relative humidity of 0 to 95 percent (non-condensing) and at an altitude of 3300 feet. Altitude derating should be no more than 3 percent per thousand feet altitude above 3300 feet.

J. The VFD must have the following diagnostic indicators:

   a. ground fault trip (LED)
   b. overload/overcurrent trip (LED)
   c. overvoltage trip (LED)
   d. instantaneous power failure (LED)
   e. thermal trip (LED)

K. The VFD shall have stall prevention (current foldback) circuitry in an operational mode, whenever the output current exceeds 150 percent of the rated VFD current, the VFD micro-processor stops increasing the output frequency and decreases it according to the set deceleration ramp until the output current goes below 150 percent. At that time, the inverter resumes normal operation and the output frequency then accelerates to set frequency and resumes normal operation.

L. Control functions shall be:

   a. Start/stop and speed-setting available on inverter chassis.

b. Capability of receiving input reference signals of 0-5v dc, 0-10v dc, 4-20mA or 3-15 psi.
c. Timed linear accel/decel adjustment from 1-150 seconds.
d. Maximum output frequency setting of 50/60 hz.
e. Reduced V/HZ pattern selectable for energy savings and "soft torque" operation on variable torque loads.
f. Dynamic braking.

M. The VFD shall have the following protective features:

N. The VFD shall not cause "notching" in the power source or interfere in any way with the operation of computers or similar electronic equipment.

O. Unit shall not require external transient protection for reliable operation.

P. The VFD shall have a maximum of 5% voltage and current harmonic distortion on the input. If the manufacturer's standard equipment can't meet this criteria, he shall be responsible for providing accessory filters or isolation transformers as required to stay within this limit.

Q. The VFD shall be Bacnet compatible without any additional communication modules, interface cards, etc.

R. Control and monitoring shall be provided remotely through BMCS

2.4 PUMP SPECIALTY FITTINGS

A. Suction Diffuser: Angle or straight pattern, 175-psig (1200-kPa) pressure rating, cast-iron body and end cap, pump-inlet fitting; with bronze startup and bronze or stainless-steel permanent strainers; bronze or stainless-steel straightening vanes; drain plug; and factory- or field-fabricated support.

B. Triple-Duty Valve: Angle or straight pattern, 175-psig (1200-kPa) pressure rating, cast-iron body, pump-discharge fitting; with drain plug and bronze-fitted shutoff, balancing, and check valve features.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine equipment foundations and anchor-bolt locations for compliance with requirements for installation.
1. Examine roughing-in for piping systems to verify actual locations of piping connections before pump installation.
2. Examine foundations for suitable conditions where pumps are to be installed.

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

3.2 PUMP INSTALLATION

A. Install pumps according to manufacturer's written instructions.

B. Install pumps to provide access for periodic maintenance, including removing motors, impellers, couplings, and accessories.

C. Support pumps and piping separately so piping is not supported by pumps.

D. Set base-mounted pumps on concrete foundation. Disconnect coupling halves before setting. Do not reconnect couplings until alignment operations have been completed.
   1. Support pump baseplate on rectangular metal blocks and shims, or on metal wedges with small taper, at points near foundation bolts to provide a gap of 3/4 to 1-1/2 inches (19 to 38 mm) between pump base and foundation for grouting.
   2. Adjust metal supports or wedges until pump and driver shafts are level. Check coupling faces and suction and discharge flanges of pump to verify that they are level and plumb.

3.3 ALIGNMENT

A. Align pump and motor shafts and piping connections after setting them on foundations, after grout has been set and foundation bolts have been tightened, and after piping connections have been made.

B. Comply with pump and coupling manufacturers' written instructions.

C. Adjust pump and motor shafts for angular and offset alignment by methods specified in HI 1.1-1.5, "Centrifugal Pumps for Nomenclature, Definitions, Application and Operation."

D. After alignment is correct, tighten foundation bolts evenly but not too firmly. Completely fill baseplate with nonshrink, nonmetallic grout while metal blocks and shims or wedges are in place. After grout has cured, fully tighten foundation bolts.

3.4 CONNECTIONS

A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to machine to allow service and maintenance.

C. Electrical power and control wiring and connections are specified in Division 16 Sections.

D. Ground equipment.
   1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

3.5 COMMISSIONING

A. Verify that pumps are installed and connected according to the Contract Documents.

B. Verify that electrical wiring installation complies with manufacturer's written instructions and the Contract Documents.

C. Perform the following preventive maintenance operations and checks before starting:
   1. Lubricate bearings.
   2. Remove grease-lubricated bearing covers, flush bearings with kerosene, and clean thoroughly. Fill with new lubricant according to manufacturer's written instructions.
   3. Disconnect coupling and check motor for proper rotation that matches direction marked on pump casing.
   4. Verify that pumps are free to rotate by hand and that pumps for handling hot liquids are free to rotate with pumps hot and cold. Do not operate pumps if they are bound or drag, until cause of trouble is determined and corrected.
   5. Check suction piping connections for tightness to avoid drawing air into pumps.
   6. Clean strainers.
   7. Verify that pump controls are correct for required application.

D. Starting procedure for pumps with shutoff power not exceeding safe motor power is as follows:
   1. Prime pumps by opening suction valves and closing drains, and prepare pumps for operation.
   2. Start motors.
   3. Open discharge valves slowly.
   4. Check general mechanical operation of pumps and motors.
   5. Close circulating line valves once there is sufficient flow through pumps to prevent overheating.

E. When pumps are to be started against closed check valves with discharge shutoff valves open, steps are the same, except open discharge valves before starting motors.

F. Refer to Division 23 Section 23 05 93, "Testing, Adjusting, and Balancing," for detailed requirements for testing, adjusting, and balancing hydronic systems.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train User's maintenance personnel to adjust, operate, and maintain hydronic pumps as specified below:
   1. Train User's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining pumps.
   2. Review data in maintenance manuals. Refer to Division 1 Section "Contract Closeout."
   3. Schedule training with User, through Engineer, with at least seven days' advance notice.

END OF SECTION 23 21 23

SECTION 23 25 00 - HVAC WATER TREATMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes water-treatment systems for the following:

1. Chilled-water and heating-water piping (closed-loop system).

1.3 CHEMICAL FEED SYSTEM DESCRIPTION

A. Closed-Loop System Existing: One bypass feeder on each system with isolating and drain valves downstream from circulating pumps, unless otherwise indicated.

1. Introduce chemical treatment through bypass feeder.

1.4 PERFORMANCE REQUIREMENTS

A. Maintain water quality for HVAC systems that controls corrosion and build-up of scale and biological growth for maximum efficiency of installed equipment without posing a hazard to operating personnel or the environment.

PART 2 - PRODUCTS

2.1 CHEMICALS

A. Provide chemicals to supplement system cleaning as recommended by User Agency’s chemical supplier. Operating chemicals will be provided by User Agency’s chemical supplier. Make arrangements with User Agency’s chemical supplier for installation of chemicals. Hydronic systems shall not be operated until clearance is received from User Agency’s chemical supplier.

2.2 MANUAL CHEMICAL-FEED EQUIPMENT

A. Bypass Feeders: Provide steel feeders with corrosion-resistant exterior coating, minimum 3-1/2-inch fill opening in the top, and NPS 3/4 bottom inlet and top side outlet. Provide quarter turn or threaded fill cap with gasket seal and diaphragm to lock the top on the feeder when exposed to system pressure in the vessel.

1. Capacity: 5 gal.
2. Minimum Working Pressure: 125 psig.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Add cleaning chemicals as recommended by manufacturer.

3.2 FIELD QUALITY CONTROL

A. Engage a factory-authorized service representative to perform startup service.

1. Inspect field-assembled components and equipment installation, including piping and electrical connections. Report results in writing.
2. Inspect piping and equipment to determine that systems and equipment have been cleaned, flushed, and filled with water, and are fully operational before introducing chemicals for water-treatment system.
3. Place HVAC water-treatment system into operation and calibrate controls during the preliminary phase of HVAC systems' startup procedures.

B. Test chemical feed piping as follows:

1. Do not enclose, cover, or put piping into operation until it is tested and satisfactory test results are achieved.
2. Test for leaks and defects. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
3. Leave uncovered and unconcealed new, altered, extended, and replaced water piping until it has been tested and approved. Expose work that has been covered or concealed before it has been tested and approved.
4. Cap and subject piping to static water pressure of 50 psig (345 kPa) above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow test pressure to stand for four hours. Leaks and loss in test pressure constitute defects.
5. Repair leaks and defects with new materials and retest piping until satisfactory results are obtained.
6. Prepare test reports, including required corrective action.

3.3 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain HVAC water-treatment systems and equipment.

1. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining equipment and schedules.

B. Review manufacturer's safety data sheets for handling of chemicals.

C. Review data in maintenance manuals, especially data on recommended parts inventory and supply sources and on availability of parts and service. Refer to Division 1 Section "Contract Closeout."

D. Review data in maintenance manuals, especially data on recommended parts inventory and supply sources and on availability of parts and service. Refer to Division 1 Section "Project Closeout."

E. Schedule at least four hours of training with Owner, through Architect, with at least seven days' advance notice.

END OF SECTION 232500

SECTION 23 35 00 - REFRIGERANT MONITORING AND SAFETY EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes refrigerant monitors and alarms.

1.3 DEFINITIONS

A. CMOS: Ceramic metal-oxide semiconductor.

B. HFC: Hydrofluorocarbon.

C. HCFC: Hydrochlorofluorocarbon.

D. IR: Infrared.

E. LED: Light-emitting diode.

F. ppm: Parts per million.

G. SCBA: Self-contained breathing apparatus.

1.4 SUBMITTALS

A. Shop Drawings: For each type of refrigerant monitor; include refrigerant ppm range, temperature range, alarm outputs, readout range, furnished specialties, installation requirements, and power consumption.

1. Wiring Diagrams: Power, signal, and control wiring.

B. Coordination Drawings: Include machinery room layout showing location of monitoring devices in relation to refrigerant equipment.

C. Product Certificates: For monitoring devices and SCBA, signed by product manufacturer.

D. Operation and Maintenance Data: For refrigerant monitoring equipment and SCBA to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

A. ASHRAE: Monitoring system shall comply with ASHRAE 15.

B. CFR: SCBA shall comply with requirements in 42 CFR 84.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Refrigerant Monitoring Equipment:

a. Davis Instruments Manufacturing Co., Inc.
b. Foxboro Company (The).
c. General Analysis Corp.
d. Genesis International Inc.
e. Thermal Gas Systems, Inc.; Haloguard Monitors.
f. Trane Co. (The).

2.2 FUNCTIONAL DESCRIPTION OF REFRIGERANT MONITORING SYSTEM

A. On leak detection by refrigerant sensor(s), the system shall perform the following:

1. Activate machinery room ventilation.
2. Activate audio and visual alarm inside and outside machinery room.
3. Shut down combustion process where combustion equipment is employed.
4. Notify Building Automation System of alarm condition.

2.3 REFRIGERANT MONITOR

A. Description: CMOS or IR sensor shall continuously measure and display the specific gas concentration and shall be capable of indicating, alarming, and shutting down equipment, and automatically activating ventilation system.

B. Performance Requirements:

1. Refrigerant to Be Monitored: R-513A.
2. Refrigerant Concentration: 0 to 1000 ppm.
3. Accuracy: 0 to 100 ppm; 1 ppm and 100 to 1000 ppm; plus or minus 10 percent of reading.
4. Linearity: 0 to 100 ppm; linear and 100 to 1000 ppm; plus or minus 2 percent of full scale.
5. Sensitivity: 1 ppm.
6. Resolution: 1 ppm.
7. Operating Temperature: 32 to 120 degrees F (5 to 40 degrees C).
8. Response Time: 90 percent of a step change in 4 minutes.
9. Relatively Humidity: 0 to 90 percent, noncondensing over the operating temperature range.

C. Operating Requirements:

1. Maximum Power Input: 120-V ac; 60 Hz, 30 W.
2. Alarm Relays: 3 relays at 5- to 8-A resistive load.
3. Alarm Set Points: Displayed on front of meter.
4. Audible Output: Sonic alert at 75 to 80 dB at 60 inches (1525 mm).
5. Analog Output: 0- to 10-V dc or 4- to 20-mA current sourcing.
6. Serial Output Type: RS 232.

D. Sensor Configuration: CMOS, Photoabsorptive IR, or Photoacoustic IR sensor.

1. Single-sensing channel.
2. Expandable to 4 channels.

E. Display: 10-character, alphanumeric, vacuum-fluorescent indicating lights for each alarm set point; standard alarm; acknowledge switch and test switch mounted on front panel; and alarm status LEDs and service fault LEDs.

1. Enclosure: NEMA 250, type as required for ambient condition.

F. Alarm Output: Indicating light flashes and horn sounds.

1. Unit-mounting device with single-light beacon.
2. Remote unit for mounting outside machinery room and having light beacon with single light.
3. Field-adjustable alarm set points.
4. Provide separate dry form-c contacts for each alarm and trouble condition for use by the BMCS Contractor.

G. Calibration: Factory calibrated.

2.4 CONTROL CABLE

A. Electronic and fiber-optic cable for control wiring shall be as specified in Division 15 Sections.

2.5 SOURCE QUALITY CONTROL

A. SCBA: Tested and certified by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration according to 42 CFR 84, Subpart H.

B. Refrigerant Monitor: Factory tested and certified.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine chiller layout for proper location of monitoring device.

B. Verify refrigerant contained in chiller(s) to ensure compatibility of refrigerant monitor.

C. Examine machinery room ventilation system to verify its operation with refrigerant monitor(s).

3.2 INSTALLATION

A. Install refrigerant monitoring equipment level and plumb.

B. Install labels and nameplates to identify monitoring devices and SCBA components according to Division 23 Section "Mechanical Identification."

C. Install building wire and cable according to Division 26 Section "Conductors and Cables."

D. Install signal and communication cable according to Division 16 Sections.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to perform the following:

1. Inspect field-assembled components, equipment installation, and electrical connections for compliance with requirements.
2. Test and adjust controls and safeties.
3. Test Reports: Prepare a written report to record the following:

    a. Test procedures used.
    b. Test results that comply with requirements.
    c. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

B. Repair or replace malfunctioning units. Retest as specified above after repairs or replacements are made.

3.4 ADJUSTING

A. Adjust alarm set points.

B. Set field-adjustable switches and circuit-breaker trip ranges as indicated.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain refrigerant monitoring devices. Refer to Division 1 Sections.

END OF SECTION 23 35 00

SECTION 23 64 26 – WATER COOLED ROTARY-SCREW WATER CHILLERS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes packaged, water-cooled, electric-motor-driven, screw water chillers with the following features:

1. Unit mounted variable frequency drive
2. Microprocessor based controls

B. Related Sections include the following:

1. Drawings and General Provisions of the contract, including General and Supplementary Conditions and Division 1 Specifications, apply to work of this Section.

1.3 DEFINITIONS

A. EER: Energy-efficiency ration

B. NPLV: Non-standard part-load value

1.4 SUBMITTALS

A. Submit drawings indicating components, assembly, dimensions, weights and loadings, required clearances, and location and size of field connections. Indicate equipment, piping and connections, valves, strainers, and thermostatic valves required for complete system.

B. Submit product data indicating rated capacities, weights, specialties and accessories, electrical requirements and wiring diagrams.

C. Submit manufacturer's installation instructions.

D. Submit performance data indicating energy input versus cooling load output from 100 to 25 percent of full load with constant entering condenser water temperature.

E. Include chiller performance based on R-513A refrigerant. All proposals for chiller performance must include an AHRI approved selection for the specified refrigerant.

1.5 QUALITY ASSURANCE

A. Conform to AHRI Standard 550/590 for rating and certified testing of Water Chilling Packages using the Vapor Compression Cycle.

B. Conform to UL 1995 - Standard for Heating and Cooling Equipment, Safety Standard. In the event the unit is not UL approved, the manufacturer shall, at manufacturer expense, provide for a field inspection by an UL representative to verify conformance to UL standards. If necessary, contractor shall perform modifications to the unit to comply with UL, as directed by the UL representative.

C. Conform to ASME SECTION VIII Boiler and Pressure Vessel Code for construction and testing of unfired pressure vessels.

D. Conform to ANSI/ASHRAE STANDARD 15 safety code for mechanical refrigeration.

E. Unit shall bear the AHRI Certification Label for the specific type of water chiller as applicable.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Ship water chillers from the factory fully charged with refrigerant or nitrogen.

1.7 MAINTENANCE SERVICE

A. All inspections and service of units shall be accomplished by factory trained and authorized servicing technicians.

B. All labor for leak checking the chiller according to the manufacturer's IOM and documentation must be included.

C. In conjunction with and supporting Factory warranty OEM shall furnish complete factory authorized service and maintenance of Applied Chillers for 2 years from Date of Substantial Completion. All work shall be done by manufacturer's commercial warranty agent.

D. OEM shall provide and report quarterly, semiannual, and annual maintenance in compliance with or better than ASHRAE Standard 180-2008.

E. Include maintenance items as recommended in manufacturer's operating and maintenance data.

F. Submit copy of service call work orders and summary report to the Owner, including description of work performed, operating performance status and noted exceptions.

1.8 VERIFICATION OF CAPACITY AND EFFICIENCY

A. All proposals for chiller performance must include an AHRI approved selection method. Verification of date and version of computer program selection or catalog is available through AHRI.

1.9 WARRANTY

A. Standard Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of water chillers that fails in materials and workmanship for the first-year parts and labor.

B. Special Warranty: Provide a second to fifth year parts, labor and refrigerant warranty on or the entire chiller for a period of five (5) years from substantial completion.

PART 2 PRODUCTS

2.1 MANUFATURERS

A. Manufacturers: Subject to compliance with the requirements, provide products by one of the following:

1. Basis of Design: Daikin WWV
2. Approved Equal

a. Trane RTHD
b. York YVWA

2.2 COMPRESSOR AND MOTOR

A. Compressor Motor Control: Each compressor shall be equipped with a VFD providing compressor speed control as a function of the cooling load. Each VFD shall provide controlled motor acceleration and deceleration, and shall provide protection for the following conditions: electronic thermal overload, over/under current, stalled motor, input and output phase loss, high load current, and current unbalance. The VFD shall provide a minimum 95% displacement compressor power factor at all load points. Compressors used in VFD controlled units must have electrically insulated, ceramic bearings to mitigate bearing and/or lubricant damage from stray electric current passage. Compressor shall be able to control compression ratio to optimize efficiency at all operating conditions. Units without this protection must have an extended 5-year compressor warranty.

B. Compressor Motors: Motors shall be high torque, two pole, semi-hermetic, squirrel cage induction type with inherent thermal protection on all three phases and cooled by suction gas

C. The compressors shall be field serviceable, semi-hermetic, single-rotor screw type with one central helical rotor meshing with two opposing gaterotors. The gaterotor contact element shall be constructed of engineered composite material, dimensionally stable up to 1500°F and wear resistant for extended life. If a twin-screw design is used, the manufacturer shall provide an extended 5-year parts and labor warranty covering all additional moving part.

D. Chiller should be able to unload to 25 percent of full load tonnage with constant entering condenser water temperature.

2.3 EVAPORATOR

A. The evaporator shall be built in accordance with ANSI/ASHRAE 15- Safety Code for Mechanical Refrigeration. Design, test, and stamp evaporator refrigerant side for 250 psig working pressure in accordance with ANSI/ASME SEC VIII.

B. Evaporator tubes shall be internally and externally enhanced. The tubes shall be securely supported at intermediate supports and physically expanded into both ends of the tube sheets. The evaporator tubes must also be removable from both ends to provide easy access for tube cleaning.

C. Enhanced water only tubes.

D. Factory insulation will be 3/4" insulation Armaflex II or equal and cover the evaporator and motor housing. Factory installed foam insulation will be used on the suction line, liquid level sensor and oil return system assembly.

2.4 CONDENSER

A. The water-cooled condenser shall be built in accordance with ANSI/ASHRAE 15 Safety Code for Mechanical Refrigeration. Design, test, and stamp condenser refrigerant side for 250 psig working pressure in accordance with ANSI/ASME SEC VIII.

B. Condenser tubes shall be internally and externally enhanced. The tubes shall be securely supported at intermediate supports and physically expanded into both ends. The condenser tubes must also be removable from both ends to provide easy access for tube changeouts or tube cleaning.

C. Condenser tube will have a nominal bottom wall thickness of 0.025".

D. Water boxes shall be designed for 150 psig maximum waterside working pressure and shall be flanged and gasketed for easy removal and access to the tubes. The water boxes shall have grooved-type water connections for easy field chilled water and condenser water connections and have proper orientation as referenced in the scheduled drawings. Waterside shall be hydrostatically tested at 1.5 times design working pressure.

2.5 REFRIGERANT CIRCUIT

A. All units shall have 1 refrigerant circuit with a single compressor. If manifolded compressors are provided on a circuit, then individual compressor warranties must be provided for each compressor on the circuit.

B. Chiller shall be able to unload to 25% of capacity with AHRI relief and constant entering condenser water temperature.

C. Provide for each refrigerant circuit:

1. Suction service valve
2. Discharge service valve
3. Liquid line shutoff valve

4. Refrigerant pressure relief valves for low side and high side
5. An electronically controlled expansion valve (EXV) is provided to maintain proper refrigerant flow.
6. Removable core filter
7. Charging port
8. Oil separator

D. Isolation valves are added to the refrigerant circuit to provide means of isolating the refrigerant charge in the condenser for installation separation or servicing.

2.6 CONTROLS

A. The chiller(s) shall be controlled by a microprocessor-based, proportional and integral controller to show water and refrigerant temperatures, refrigerant pressures and diagnostics. A dedicated chiller control panel with a non-coded display is to be supplied with each chiller by the chiller manufacturer. The controller shall provide chiller capacity control in response to the leaving chilled water temperature.

B. The chiller control panel shall utilize an Adaptive Control Microprocessor which will automatically take action to prevent unit shutdown due to abnormal operating conditions associated with: evaporator refrigerant temperature, high condensing pressure and motor current overload.

C. If the chiller runs in any of the abnormal operating conditions, the chiller will continue to run, in an unloaded state, and will continue to produce chilled water in an attempt to meet the cooling load. However, if the chiller reaches the trip-out limits, the chiller controls will take the chiller off line for protection, and a manual reset is required. Once the "near trip" condition is corrected, the chiller will return to normal operation and can then produce full load cooling.

D. The chiller control panel shall provide control of chiller operation and monitoring of chiller sensors, actuators, relays, and switches. The panel shall be a complete system for stand-alone chiller control and include controls to safely and efficiently operate the chiller.

E. Manufacturer shall provide a compressor that is capable of unloading to an infinite amount of positions in order to provide water temperature accuracy of +/- 0.5ºF. In the event that the compressor unloads to finite steps, the manufacturer shall provide eight (8) or more steps of unloading on each compressor or provide hot gas bypass (HGBP).

F. A relay output to start the condenser water pump and/or enable the cooling tower temperature controls.

G. The chiller control panel shall provide a chilled water pump output relay that closes when the chiller is given a signal to start.

H. The chiller control panel shall have the ability to operate in variable evaporator flow applications. The chiller control must be able to operate with evaporator flow rate changes up to 10% during a 1 minute time period while maintaining 0.5ºF water temperature accuracy. The chiller control must also be able to operate with evaporator flow rate changes up to 30% during a 1 minute time period while maintaining 2ºF water temperature accuracy.

I. The chiller control panel is to be provided with the following digital type pressure readouts:

1. Evaporator refrigerant pressure
2. Condenser refrigerant pressure

J. The front of the chiller control panel shall be capable of displaying the following clear language as standard:

1. Entering and leaving evaporator water temperature
2. Entering and leaving condenser water temperature
3. Chilled water setpoint
4. Electrical 3 phase current limit and percent RLA setpoint
5. Electrical 3 phase amp draw
6. Chiller operating mode
7. Condenser refrigerant temperature
8. Elapsed time and number-of-starts counter
9. Chiller compressor run status relay
10. Diagnostics with time and date stamp
11. The control panel display shall identify the fault, indicate date, time, and operating mode at time of occurrence, and provide type of reset required and a help message. The historic diagnostic report shall display the last 20 diagnostics with their times and dates of occurrence

K. Digital communications to BAS system interface with BACnet MS/TP via a single twisted pair wiring to a factory installed and tested communication board.

L. The chiller control panel shall provide leaving chilled water temperature reset based upon return water temperature.

M. Chiller provides an output signal to indicate the refrigerant pressure differential between the evaporator and condenser in psid. A BAS or other intermediate control is required to achieve condenser refrigerant differential pressure control.

2.7 ACCESSORIES

A. 6" 150 psi 2-way water regulating valve

2.8 INSULATION

A. Cold Surfaces: Closed-cell, flexible elastomeric, thermal insulation complying with ASTM C 534, Type II, for sheet materials.

1. Thickness: 1-1/2 inches (38 mm).
2. Adhesive: As recommended by insulation manufacturer.
3. Factory apply insulation over entire surfaces of water chiller components.

a. Apply adhesive to 100 percent of insulation contact surface.
b. Seal seams and joints.
c. After adhesive has fully cured, apply two coats of protective coating to insulation.

PART 3 EXECUTION

3.1 INSTALLATION

A. Before water chiller installation, examine roughing-in for concrete equipment bases, anchor-bolt sizes and locations, piping, and electrical to verify actual locations, sizes, and other conditions affecting water chiller performance, maintenance, and operations.

1. Final water chiller locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping and electrical connections.

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

3.2 WATER CHILLER INSTALLATION

A. Install water chillers on concrete base. Concrete base is specified in Division 15 Section 15050, "Basic Mechanical Materials and Methods."

B. Concrete Bases: Anchor chiller mounting frame to concrete base.

1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18 inch (450 mm) centers around the full perimeter of concrete base.
2. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
4. Install anchor bolts to elevations required for proper attachment to supported equipment.

C. Vibration Isolation: Rubber pads with a minimum deflection of 0.25 inch (6.35 mm).

D. Maintain manufacturer's recommended clearances for service and maintenance.

E. Charge water chiller with refrigerant if not factory charged.

F. Install separate devices furnished by manufacturer.

3.3 CONNECTIONS

A. Chilled- and condenser-water piping installation requirements are specified in Division 15 Section 15181, "Hydronic Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to water chillers to allow service and maintenance.

C. Evaporator Connections: Connect inlet to evaporator with controller-bulb well, shutoff valve, thermometer, strainer, pressure gage, and union or flange. Connect outlet to evaporator with shutoff valve, flow switch, balancing valve, thermometer, pressure gage, and union or flange.

D. Condenser Connections: Connect inlet to condenser with shutoff valve, thermometer, plugged tee, and pressure gage. Connect outlet to condenser with shutoff valve, thermometer, drain line

and shutoff valve, strainer, and plugged tee.

E. Install shutoff valves at chilled-water and condenser-water inlet and outlet connections.

F. Refrigerant Pressure Relief Valve Connections: Extend vent piping to the outside without valves or restrictions.

G. Ground water chillers according to Division 26 Section "Grounding and Bonding."

H. Connect wiring according to Division 26 Section "Conductors and Cables."

I. Tighten electrical connectors and terminals according to manufacturer's published torque tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 STARTUP SERVICE

A. Engage a factory-trained service representative to perform startup service.

B. Inspect field-assembled components, equipment installation, and piping and electrical connections for proper assemblies, installations, and connections.

C. Complete installation and startup checks according to manufacturer's written instructions and perform the following:

1. Verify that refrigerant charge is sufficient and water chiller has been leak tested.
2. Verify that pumps are installed and functional.
3. Verify that thermometers and gages are installed.
4. Operate water chiller for run-in period according to manufacturer's written instructions.
5. Check bearing lubrication and oil levels.
6. Verify that refrigerant pressure relief is vented outside.
7. Verify proper motor rotation.
8. Verify static deflection of vibration isolators, including deflection during water chiller startup and shutdown.
9. Verify and record performance of chilled- and condenser-water flow and low-temperature interlocks.
10. Verify and record performance of water chiller protection devices.
11. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.

D. Prepare a written startup report that records results of tests and inspections.

E. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to site outside normal occupancy hours for this purpose.

3.5 FIELD PERFORMANCE TEST

A. Upon completion of the startup service the factory trained service representative shall be

available to assist the Testing, Adjusting, and Balancing Contractor as needed to complete the field performance test. The TAB Contractor shall perform the testing and take all readings, measurements, etc. and shall record all data.

3.6 DEMONSTRATION

A. Engage a factory-trained service representative to train Owner's maintenance personnel to adjust, operate, and maintain water chillers. Refer to Division 1 Section "Project Closeout."

END OF SECTION 23 64 26

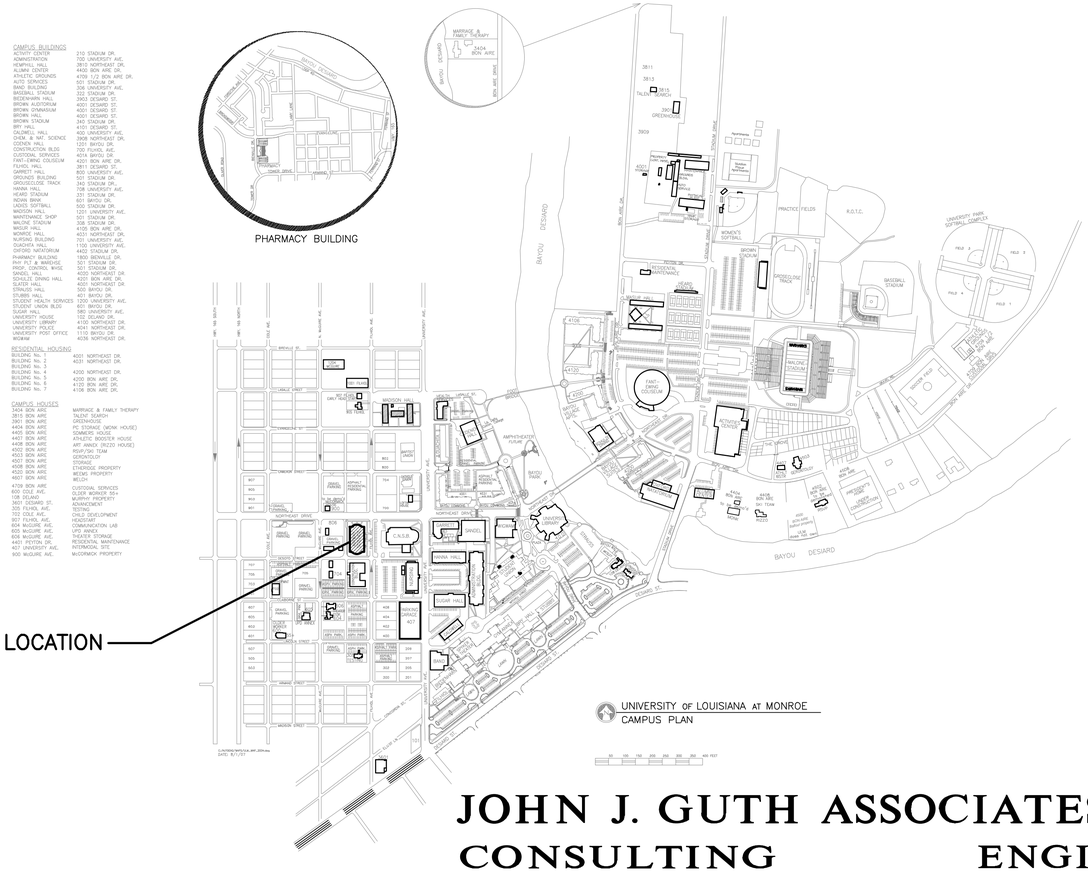
HEMPHILL HALL

CHILLER REPLACEMENTS

University of Louisiana at Monroe
Monroe, Louisiana

Proposal No. _____-___

APRIL 21, 2025



PHARMACY BUILDING

PROJECT LOCATION

UNIVERSITY OF LOUISIANA AT MONROE
CAMPUS PLAN

INDEX TO DRAWINGS

NOTE: SEE SPECIFICATIONS
010300–ALTERNATES
FOR ADDITIVE ALTERNATES

JOHN J. GUTH ASSOCIATES, INC.
CONSULTING ENGINEERS
SHREVEPORT, LOUISIANA

STATE OF LOUISIANA
JOHN C. WILSON
REG. No. 19008
REGISTERED
PROFESSIONAL ENGINEER
MECHANICAL ENGINEERING
4/17/2025

7321/CS1

DATE DRAWING LAST SAVED: 04/17/25 TIME:08:39:24
DATE DRAWING LAST PLOTTED: 04/17/25 TIME:08:39:26

WATER COOLED CHILLER SCHEDULE

DESIGNATION		CH - 1	CH - 2
LOCATION		MECHANICAL ROOM	MECHANICAL ROOM
SERVICE		CHILLED WATER	CHILLED WATER
TYPE		SCREW	SCREW
REFRIGERANT TYPE		R513A	R513A
NET CAPACITY	TONS	200	200
EVAPORATOR			
ENTERING WATER TEMPERATURE	F	55	55
LEAVING WATER TEMPERATURE	F	45	45
WATER FLOW	GPM	480	480
WATER PRESSURE DROP	FT WG	8.1	8.1
MINIMUM FLUID FLOW	GPM	565	565
FOULING FACTOR		0.00010	0.00010
CONDENSER			
ENTERING WATER TEMPERATURE	F	85	85
LEAVING WATER TEMPERATURE	F	95	95
WATER FLOW	GPM	562	562
WATER PRESSURE DROP	FT WG	12.5	12.5
COMPRESSOR			
TYPE		SCREW	SCREW
NUMBER		1	1
VARIABLE FREQUENCY DRIVE		YES	YES
VOLTS / PHASE		460 / 3	460 / 3
POWER	KW	124.5	124.5
RLA	AMP	165	165
MCA	AMP	208	208
MOCP	AMP	350	350
EFFICIENCY			
COOLING EFFICIENCY	KW / TON	0.62	0.62
NPLV	ARI 550/590	0.36	0.36
APPROX DIMENSIONS (LX W X H)	FT	13.5 X 5.1 X 8.3	13.5 X 5.1 X 8.3
APPROX OPERATING WEIGHT	LBS	13958	13958
BASIS OF DESIGN		DAIKIN	DAIKIN
MODEL NO		WWVMNNSASND	WWVMNNSASND
REMARKS		1,2,3,5	1,2,3,6

1. SINGLE POINT POWER CONNECTION
2. FIVE YEAR PARTS, LABOR AND REFRIGERANT WARRANTY
3. UNIT MOUNTED DISCONNECT SWITCH
4. REFER TO SPECIFICATIONS FOR ADDITIONAL APPROVED MANUFACTURERS
5. INCLUDE IN BASE BID.
6. INCLUDE IN ADDITIVE ALTERNATE NO.1

PIPE AND FITTING MATERIAL SCHEDULE

SERVICE	PIPE MATERIAL	JOINT TYPE	FITTING MATERIAL	REMARKS
DOMESTIC WATER, MAKE-UP	TYPE "K" HARD COPPER, ASTM B-88	SILVER BRAZED	WROUGHT COPPER	FOR EXTERIOR SEE SPECIFICATIONS
DRAIN PIPING	TYPE "DWV" HARD COPPER, ASTM B306-96	95-5 SOLDER WITH INTERMEDIATELY CORROSIVE FLUX	WROUGHT COPPER	
CONDENSER WATER PIPING	SCHEDULE 40 BLACK ASTM A-53	BUTT WELD	MALLEABLE IRON BUTT WELDED	
CONDENSER WATER PIPING ABOVE GRADE (OPTION)	SCHEDULE 40 BLACK STEEL ASTM A-53	RIGID GROOVED WITH GASKET AND COUPLING ABOVE 3/4"	MALLEABLE IRON OR DUCTILE IRON COUPLING HOUSING WITH EDPM GRADE "E" GASKET	
CHILLED WATER PIPING	SCHEDULE 40 BLACK STEEL ASTM A-53	SCREWED THRU 2", WELD ALL LARGER PIPE	MALLEABLE SCREWED TYPE & BUTT WELD STEEL WHERE REQUIRED	FOR EXTERIOR SEE SPECIFICATIONS
CHILLED WATER PIPING ABOVE GRADE (OPTION)	SCHEDULE 40 BLACK STEEL ASTM A-53	RIGID GROOVED WITH GASKET AND COUPLING ABOVE 3/4"	MALLEABLE IRON OR DUCTILE IRON COUPLING HOUSING W/ EDPM GRADE "E" GASKET	

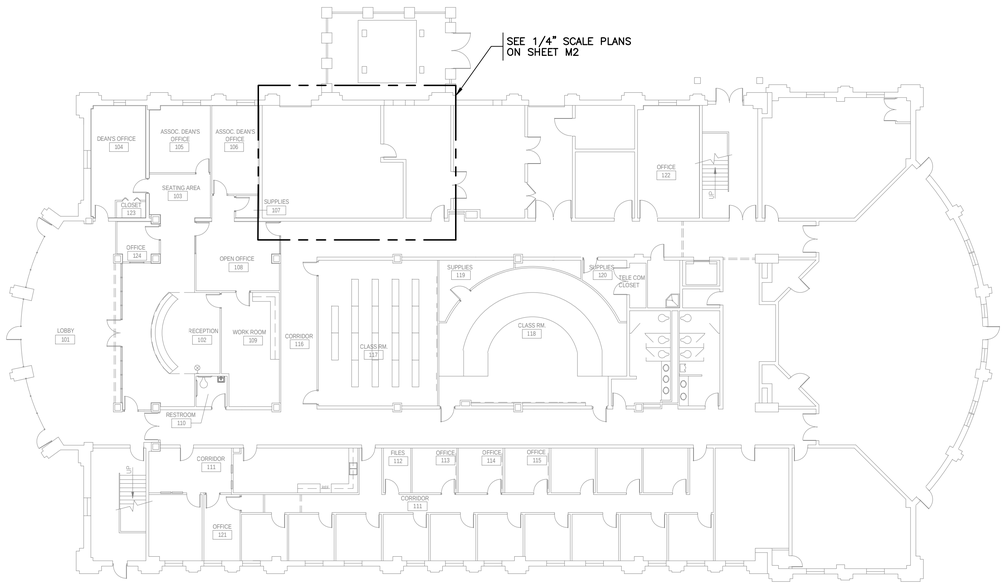
PUMP SCHEDULE

NO	SERVICE	GPM	HEAD	RPM	HP	VOLTAGE	REMARKS
CWP-1	CHILLED WATER	480	75	1800	20	460V-3ø	END SUCTION CENTRIFUGAL
CWP-2	CHILLED WATER	480	75	1800	20	460V-3ø	END SUCTION CENTRIFUGAL
CONDW P-3	CONDENSER WATER	562	65	1800	15	460V-3ø	END SUCTION CENTRIFUGAL
CONDW P-4	CONDENSER WATER	562	65	1800	15	460V-3ø	END SUCTION CENTRIFUGAL

INCLUDE CWP-1 & CWP-2 IN ADDITIVE ALTERNATE NO.2
INCLUDE CONDW P-3 AND CONDW P-4 IN ADDITIVE ALTERNATE NO.3

MECHANICAL SYMBOLS

SYMBOL	DESCRIPTION
— - CS - —	EXISTING CONDENSER WATER SUPPLY TO BE REMOVED
—— CS ——	EXISTING CONDENSER WATER SUPPLY TO REMAIN
—— CS ——	NEW CONDENSER WATER SUPPLY
— - CR - —	EXISTING CONDENSER WATER RETURN TO BE REMOVED
—— CR ——	EXISTING CONDENSER WATER RETURN TO REMAIN
—— CR ——	NEW CONDENSER WATER RETURN
— — • — —	EXISTING DOMESTIC COLD WATER TO BE REMOVED
——•——	EXISTING DOMESTIC COLD WATER TO REMAIN
——•——	NEW DOMESCTIC COLD WATER
	GATE VALVE
	SQUARE HEAD BALANCING COCK
	CHECK VALVE
	AUTOMATIC CONTROL VALVE
	WATER PRESSURE GAUGE WITH COCK
	ELBOW DOWN, ELBOW UP
	TEE DOWN, TEE UP
	CONCENTRIC REDUCER, ECCENTRIC REDUCER
	UNION
	STRAINER (WITH DRAIN VALVE)
	FLEXIBLE CONNECTOR
	AIR ELIMINATOR OR AIR VENT
P.T.P.	PRESSURE TEMPERATURE PLUG
A / M1	DETAIL DESIGNATION SHEET WHERE DETAIL IS LOCATED
	POINT OF CONNECTION EXISTING TO NEW
	POINT OF TERMINATION OF DEMOLITION



HEMPHILL HALL

FIRST FLOOR PLAN 1/16"=1'-0"
MECHANICAL

N

JOHN J. GUTH ASSOCIATES, INC.
MECHANICAL AND ELECTRICAL ENGINEERS
208 MILAM STREET
SHREVEPORT, LOUISIANA 71101
DESIGNER: JOHN WILSON P.E.
CHECKED BY: JW

THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.

STATE OF LOUISIANA
JOHN C. WILSON
REG. No. 18008
REGISTERED
PROFESSIONAL ENGINEER
IN
MECHANICAL ENGINEERING
4/17/25

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ULM - HEMPHILL HALL
CHILLER REPLACEMENTS
MONROE, LA

REVISIONS

JOB NO. 7321

DATE: APRIL 21, 2025

SHEET NO.

M1

OF 5M

DATE DRAWING LAST SAVED: 04/17/25 TIME:08:55:00
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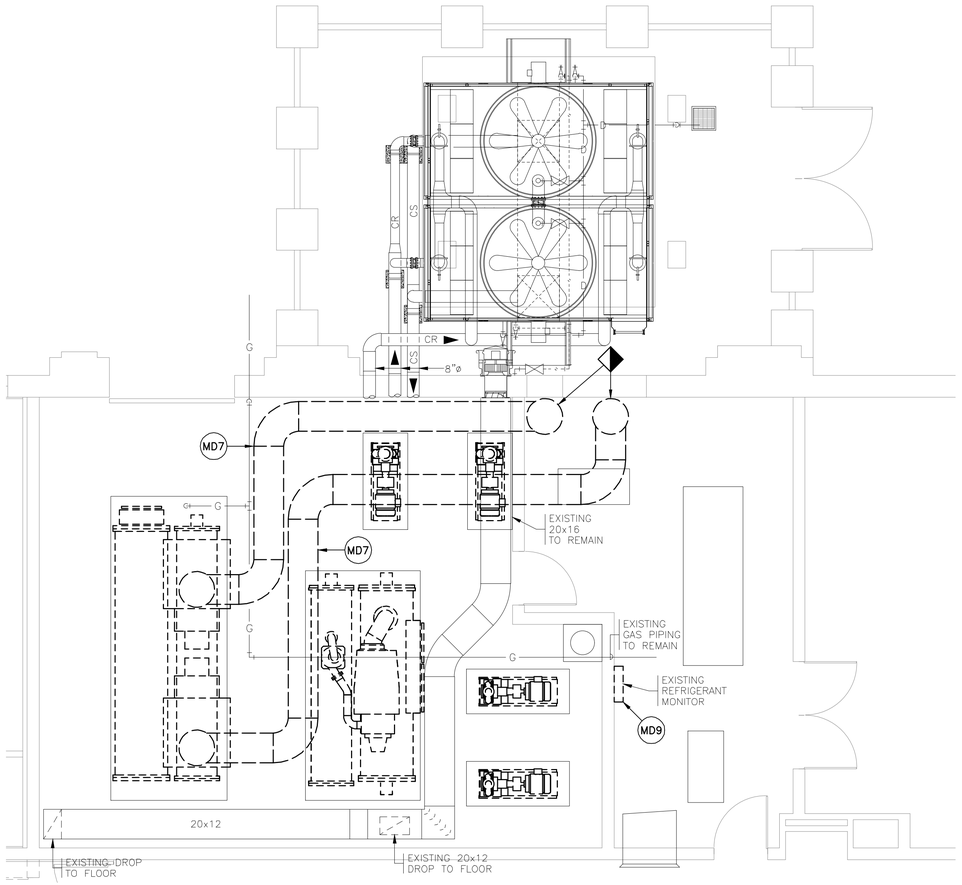

FIRST FLOOR PLAN VENTILATION DEMOLITION

1/4"=1'-0"

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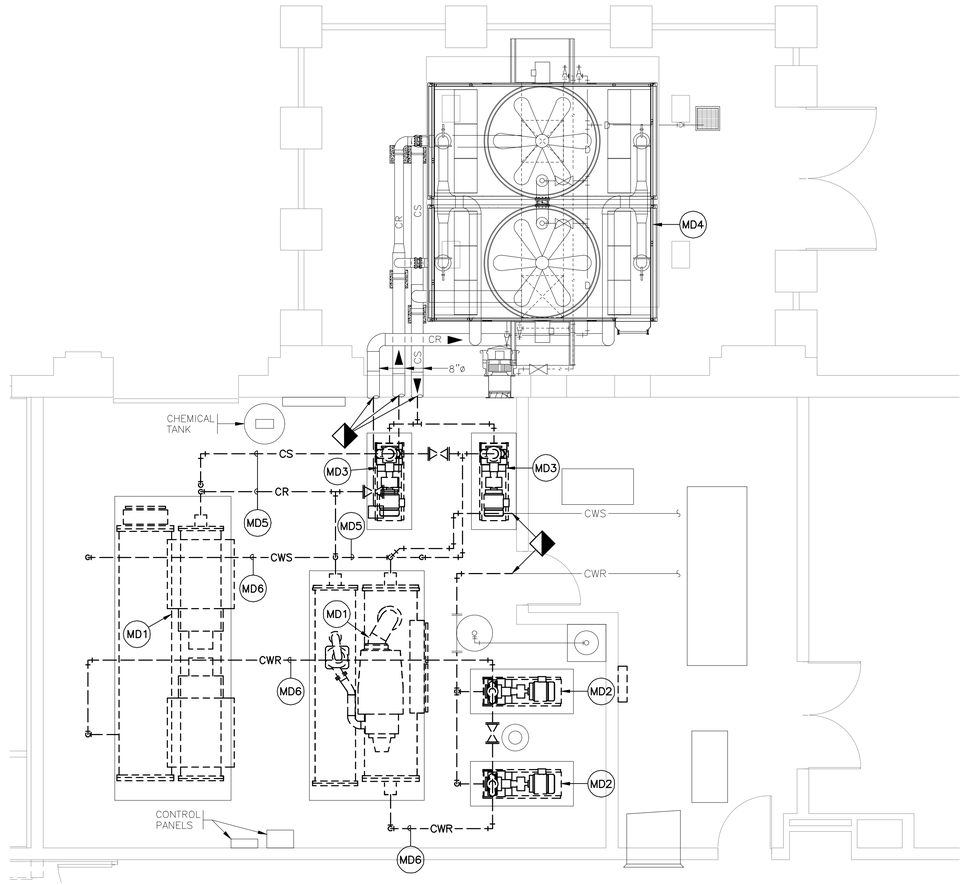

FIRST FLOOR PLAN MECHANICAL DEMOLITION

1/4"=1'-0"

N

MECHANICAL DEMOLITION NOTES:

MD1 REMOVE EXISTING WATER CHILLER AND ALL ASSOCIATED CHILLED WATER AND CONDENSER WATER PIPING TO POINTS INDICATED, CONTROLS, AND SUPPORTS. EXISTING CONCRETE PAD TO REMAIN.

MD2 REMOVE EXISTING CHILLED WATER PUMP AND ALL ASSOCIATED VALVES, PIPING AND CONTROLS. EXISTING CONCRETE PAD TO REMAIN AND BE MODIFIED FOR NEW PUMP.

MD3 REMOVE EXISTING CONDENSER WATER PUMP AND ALL ASSOCIATED VALVES, PIPING AND CONTROLS. EXISTING CONCRETE PAD TO REMAIN AND BE MODIFIED FOR NEW PUMP.

MD4 EXISTING COOLING TOWER TO REMAIN.

MD5 REMOVE EXISTING CONDENSER WATER PIPING TO POINTS INDICATED.

MD6 REMOVE EXISTING CHILLED WATER PIPING TO POINTS INDICATED.

MD7 REMOVE EXISTING ENGINE EXHAUST TO VERTICAL RISER AND CAP.

MD8 REMOVE EXISTING GAS PIPING TO CHILLER ENGINE AND CAP AT MAIN.

MD9 REPLACE EXISTING REFRIGERANT MONITOR WITH NEW MONITOR THAT SENSE NEW REFRIGERANT. CONNECT TO EXISTING EXHAUST FAN.

JOHN J. GUTH ASSOCIATES, INC.
CONSULTING MECHANICAL AND ELECTRICAL ENGINEERS
208 MILAM STREET
SHREVEPORT, LOUISIANA 71101
DESIGNER: JOHN WILSON P.E.
CHECKED BY: KW

THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.

STATE OF LOUISIANA
JOHN C. WILSON
REG. No. 18008
PROFESSIONAL ENGINEER
4/17/25
MECHANICAL ENGINEERING

JOHN J. GUTH ASSOCIATES, INC.
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ULM - HEMPHILL HALL
CHILLER REPLACEMENTS
MONROE, LA

REVISIONS

JOB NO. 7321

DATE: APRIL 21, 2025

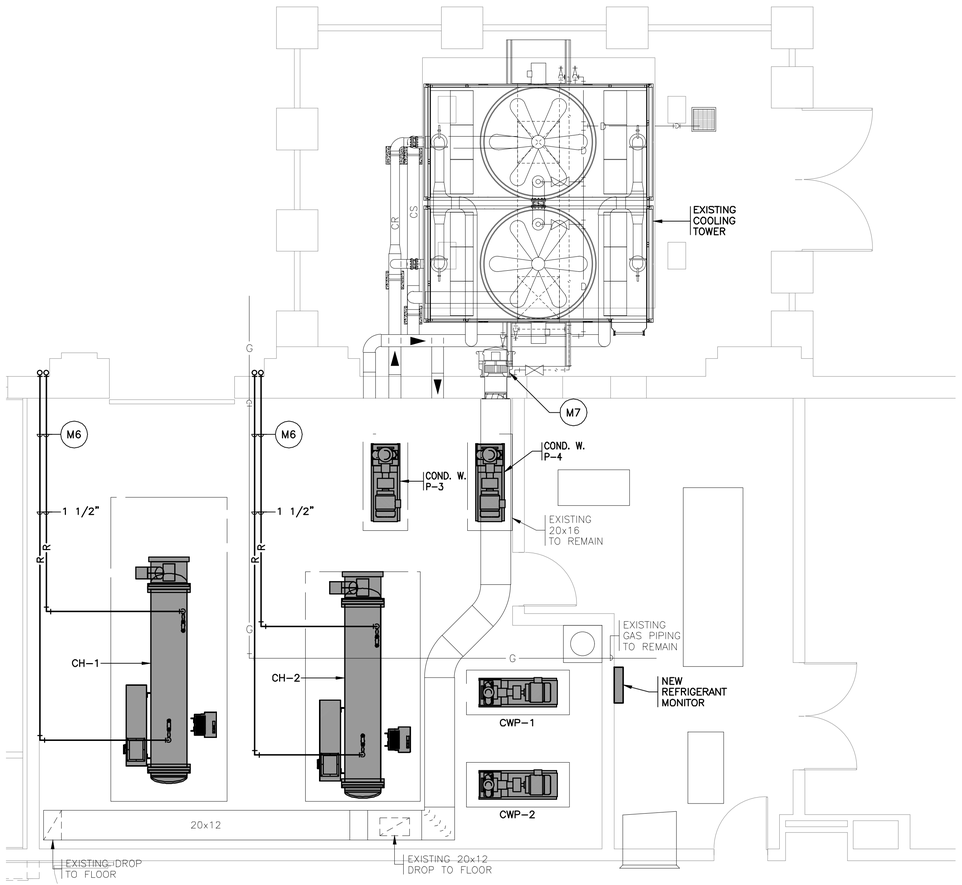
SHEET NO.

M2

OF 5M

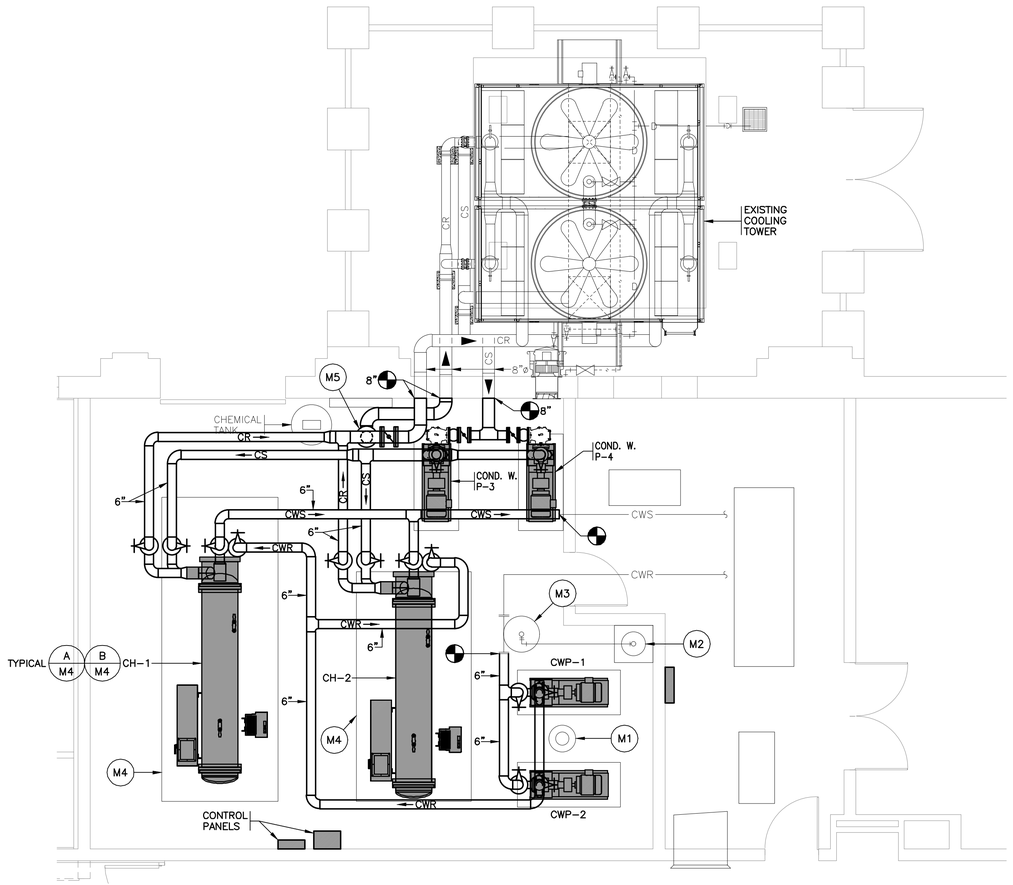
DATE DRAWING LAST SAVED: 03/12/25 TIME:08:37:34

DATE DRAWING LAST PLOTTED: 04/17/25 TIME:08:57:56



FIRST FLOOR PLAN 1/4"=1'-0"
VENTILATION RENOVATION

N



FIRST FLOOR PLAN 1/4"=1'-0"
MECHANICAL RENOVATION

N

MECHANICAL NOTES:

M1 RECONNECT EXISTING CHEMICAL FEED TANK TO CHILLED WATER PIPING.

M2 EXISTING EXPANSION TANK TO REMAIN.

M3 EXISTING AIR SEPARATOR TO REMAIN.

M4 EXISTING CONCRETE PAD TO REMAIN.

M5 NEW MOTORIZED BYPASS ASSEMBLY.

M6 1 1/2" REFRIGERANT VENT.

M7 EXISTING VENT FAN. CONNECT TO NEW REFRIGERANT MONITOR.

DATE DRAWING LAST SAVED: 04/17/25 TIME:08:59:02
DATE DRAWING LAST PLOTTED: 04/17/25 TIME:08:59:03

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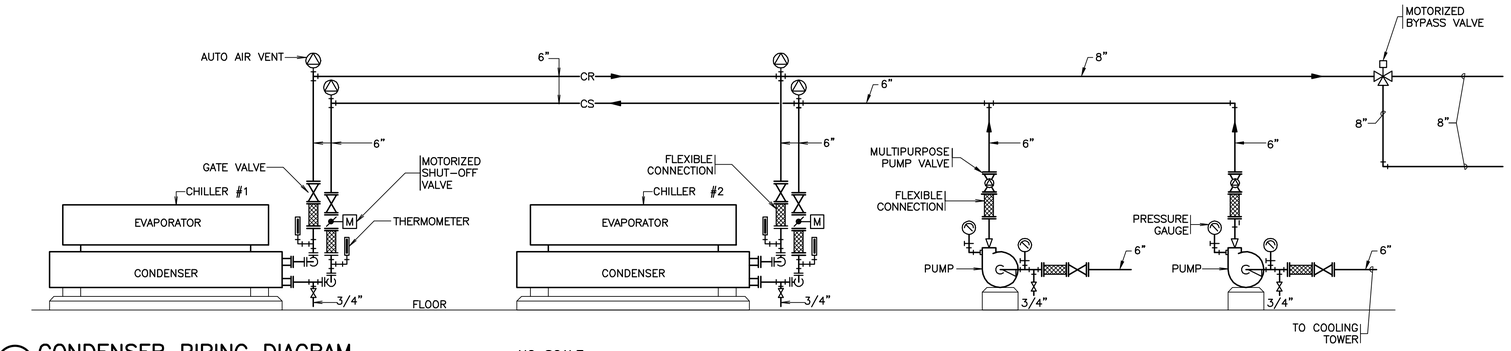
SHEET NO.

M3

OF 5M

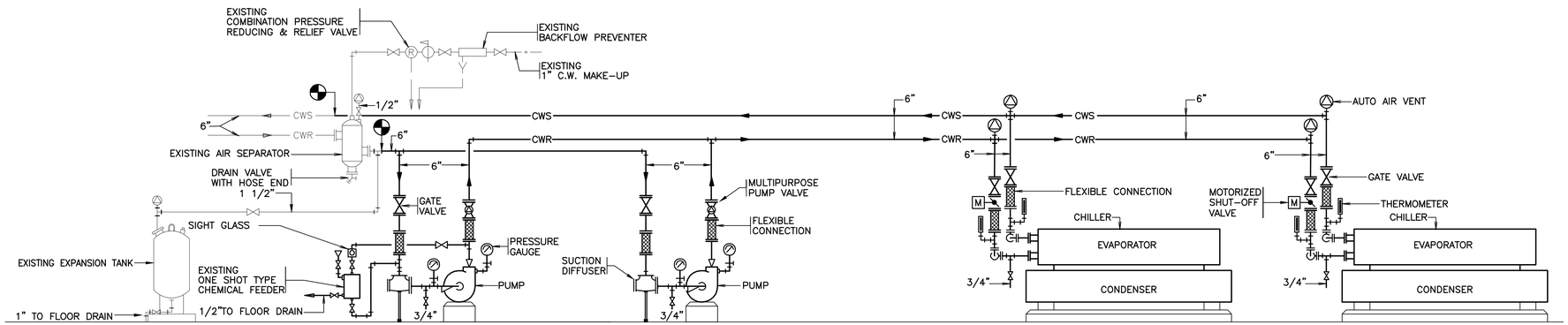


A CONDENSER PIPING DIAGRAM

NO SCALE

NOTES:

1. PROVIDE FLANGED FITTINGS AT CONDENSER AND ARRANGE PIPING TO FACILITATE HEAD REMOVAL AND TUBE MAINTENANCE.
2. PROVIDE SUCTION DIFFUSER AT PUMP ENTRANCE.



B DIAGRAM-CHILLED WATER PIPING

NO SCALE

NOTES:

1. PROVIDE FLANGED FITTINGS AT EVAPORATOR AND ARRANGE PIPING TO FACILITATE HEAD REMOVAL AND TUBE MAINTENANCE.
2. PROVIDE SUCTION DIFFUSERS ON PUMP INLETS.

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DESIGNER: JOHN WILSON P.E.
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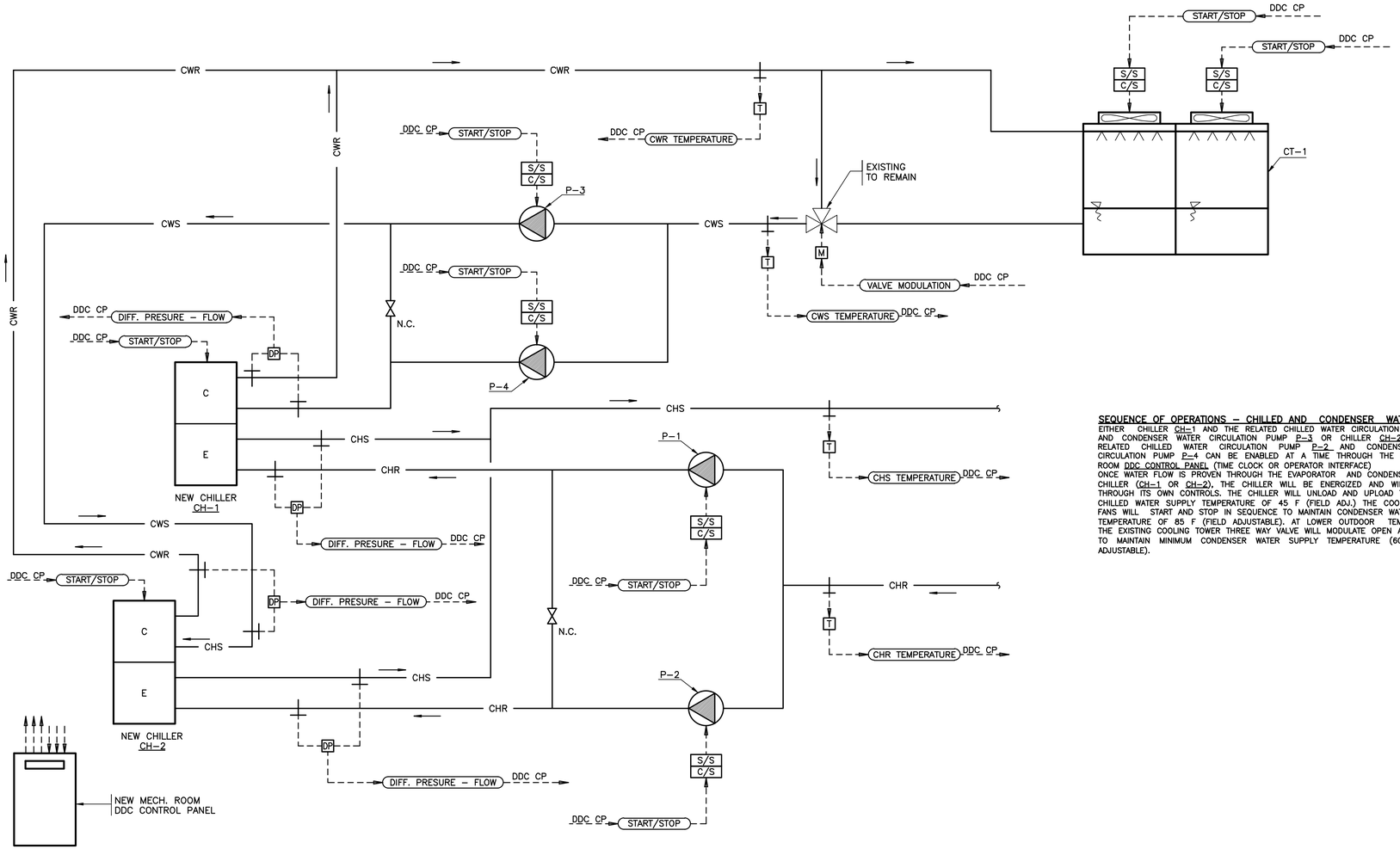
DATE: APRIL 21, 2025

SHEET NO.

M4

OF 5M



1 CHILLED AND CONDENSER WATER PIPING AND CONTROLS DIAGRAM NO SCALE

SEQUENCE OF OPERATIONS - CHILLED AND CONDENSER WATER LOOP

EITHER CHILLER CH-1 AND THE RELATED CHILLED WATER CIRCULATION PUMP P-1 AND CONDENSER WATER CIRCULATION PUMP P-3 OR CHILLER CH-2 AND THE RELATED CHILLED WATER CIRCULATION PUMP P-2 AND CONDENSER WATER CIRCULATION PUMP P-4 CAN BE ENABLED AT A TIME THROUGH THE MECHANICAL ROOM DDC CONTROL PANEL (TIME CLOCK OR OPERATOR INTERFACE)

ONCE WATER FLOW IS PROVEN THROUGH THE EVAPORATOR AND CONDENSER OF THE CHILLER (CH-1 OR CH-2), THE CHILLER WILL BE ENERGIZED AND WILL OPERATE THROUGH ITS OWN CONTROLS. THE CHILLER WILL UNLOAD AND UPLOAD TO MAINTAIN CHILLED WATER SUPPLY TEMPERATURE OF 45 F (FIELD ADJ.) THE COOLING TOWER FANS WILL START AND STOP IN SEQUENCE TO MAINTAIN CONDENSER WATER SUPPLY TEMPERATURE OF 85 F (FIELD ADJUSTABLE). AT LOWER OUTDOOR TEMPERATURES, THE EXISTING COOLING TOWER THREE WAY VALVE WILL MODULATE OPEN AND CLOSED TO MAINTAIN MINIMUM CONDENSER WATER SUPPLY TEMPERATURE (60 F, FIELD ADJUSTABLE).

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SHEET NO.

M5

OF 5M

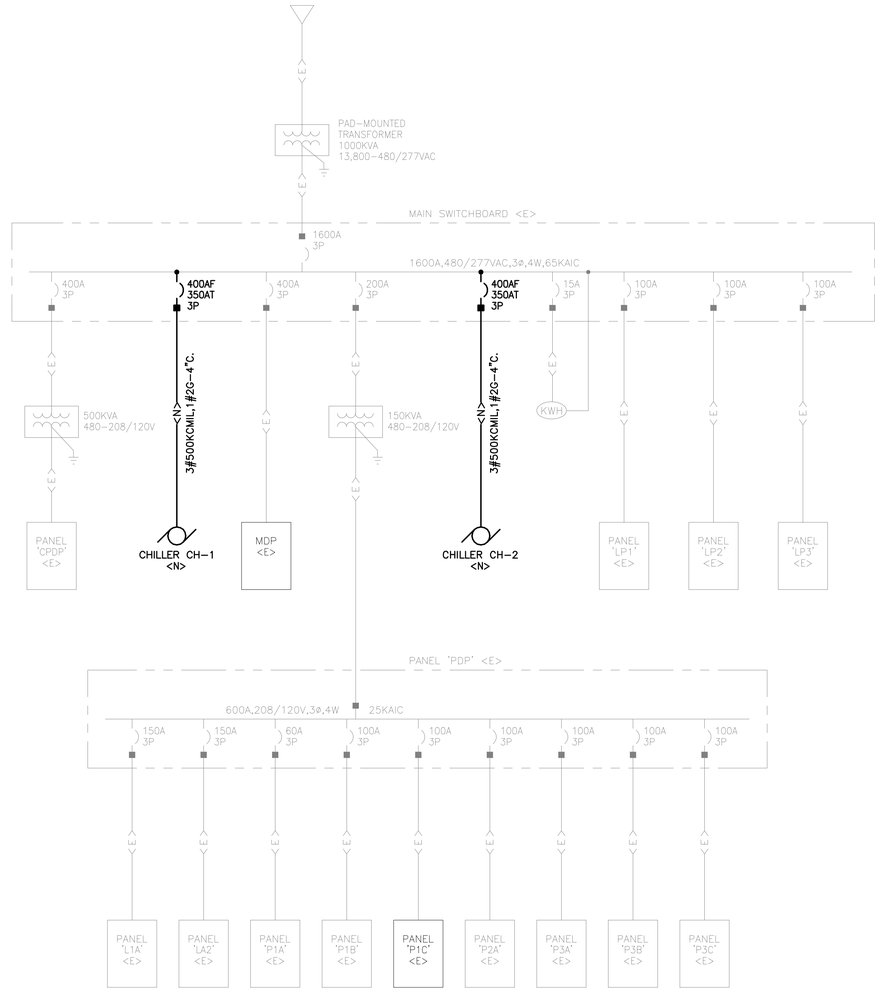
ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
M	MOTOR RATED TOGGLE SWITCH WITH INTEGRAL THERMAL OVERLOAD
	CONDUIT AND WIRING RUN CONCEALED IN WALLS OR ABOVE CEILING
	CONDUIT AND WIRING RUN IN OR BELOW FLOOR OR BELOW GRADE
	CONDUIT AND WIRING RUN EXPOSED ON ROOF OR WALLS
	NEUTRAL AND PHASE OR SWITCHED CONDUCTOR RESPECTIVELY
	GROUND CONDUCTOR, GREEN INSULATED
L-1,3	HOMERUN TO PANEL (CIRCUIT NUMBERS INDICATED)
	CONDUIT TURNED UP; CONDUIT TURNED DOWN RESPECTIVELY
	WIRING IN FLEXIBLE METALLIC CONDUIT
	CONDUIT OR DUCT STUB-OUT – PROVIDE CAP AND MARK FOR FUTURE LOCATION
G	GROUNDING ELECTRODE CONDUCTOR – BARE COPPER GROUND ON SIZE INDICATED UON.
	GROUND ROD – 3/4"x10'-0"
	DUPLEX RECEPTACLE, 125V-1P-20A – MOUNT CENTERLINE 18" AFF UON
	DOUBLE DUPLEX RECEPTACLE, 125V-1P-15A – MOUNT CENTERLINE 18" AFF UON
	DUPLEX RECEPTACLE, 125V-1P-20A, GROUND FAULT CURRENT INTERRUPTING TYPE – MOUNT CENTERLINE 18" AFF UON
J	JUNCTION BOX (JB)
	PULL BOX, SIZE AS INDICATED
P	PUMP MOTOR CONNECTION
	NEW AND RELOCATED LIGHTING FIXTURE OR DEVICE
	EXISTING TO BE REMOVED
	EXISTING TO REMAIN
F	SAFETY SWITCH, FUSED
	SAFETY SWITCH, NON-FUSED
	MOTOR STARTER, COMBINATION STARTER
	COMBINATION STARTER

SYMBOL	DESCRIPTION
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
MRCT	MULTI-RATIO CURRENT TRANSFORMER
<N>	NEW
<R>	EXISTING DEVICE TO BE REMOVED
<RE>	NEW LOCATION OF RELOCATED DEVICE
<RL>	EXISTING DEVICE TO BE RELOCATED
SWBD	SWITCHBOARD
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF
1	ELECTRICAL NOTE REFERENCE
2 / E2	DETAIL DESIGNATION (E2) SHEET ON WHICH DETAIL DRAWN
4#400KCMIL, 1#4/0G-(5)4"C.	INDICATED SIZE AND NUMBER OF CONDUCTORS INSTALLED IN EACH OF FIVE (5) 4" CONDUITS
2	DRAWOUT MOTOR STARTER CUBICLE WITH MOTOR CIRCUIT PROTECTOR FOR INSTALLATION WITHIN MOTOR CONTROL CENTER. "2" INDICATES NEMA SIZE STARTER
	MOTOR CONNECTION
	PANELBOARD, SURFACE MOUNTED
	PANELBOARD, FLUSH MOUNTED DISTRIBUTION
	DISTRIBUTION PANELBOARD, SWITCHBOARD
AFF	ABOVE FINISHED FLOOR
BCG	BARE COPPER GROUND
<E>	EXISTING TO REMAIN
T	TRANSFORMER
H	CAST-IN-PLACE HANDHOLE, SIZE AS INDICATED
H	DUCT-MOUNTED HEATER

PANELBOARD AND FEEDER SCHEDULE

MARK	MAINS	BRANCH	BRANCH DES.	BRANCH SIZE	FEEDING
MDP <E>	400A MLO 400A BUS 480/277VAC 3ø,4W 65,000AIC	2-60A-3P 4-50A-3P 2-70A-3P 1-20A-3P 3-60A-3P 1-20A-3P 3-1P	2,4,6,20,22,24 1,3,5,7-12,14,16,18 19,21,23,25,27,29 13,15,17 26,28,30-36 38,40,42 37,39,41	EXISTING EXISTING EXISTING EXISTING 3#12,1#12G-3/4"C. 3#12,1#12G-3/4"C. ---	EXISTING EXISTING EXISTING EXISTING CT FANS/BASIN HEATER BASIN HEATER SPACE
P1C <E>	100A MLO 100A BUS 208/120VAC 3ø,4W 65,000AIC	13-20A-1P 1-20A-1P 11-20A-1P 1-20A-3P 2-1P	1-13 14 15-25 26,28,30 27,29	EXISTING 2#12,1#12G-3/4"C. EXISTING EXISTING ---	EXISTING HEAT TRACING TAPE EXISTING EXISTING SPACE
MSB <E>	1600A MCB 1600A BUS 480/277VAC 3ø,4W 65,000AIC	1-1P 1-350A-3P 1-200A-3P 1-15A-3P 1-3P 3-100A-3P 3-400A-3P	1 2 3 4 6 5,7,8 9-11	--- 3#500KCMIL,1#2G-4"C. EXISTING EXISTING --- EXISTING EXISTING	SPACE CHILLER EXISTING EXISTING SPACE EXISTING EXISTING



SINGLE LINE DIAGRAM NO SCALE
ELECTRICAL

JOHN J. GUTH ASSOCIATES, INC.
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CHECKED BY:
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STATE OF LOUISIANA J. P. FOREMAN REG. No. 23378 PROFESSIONAL ENGINEER 4/21/25
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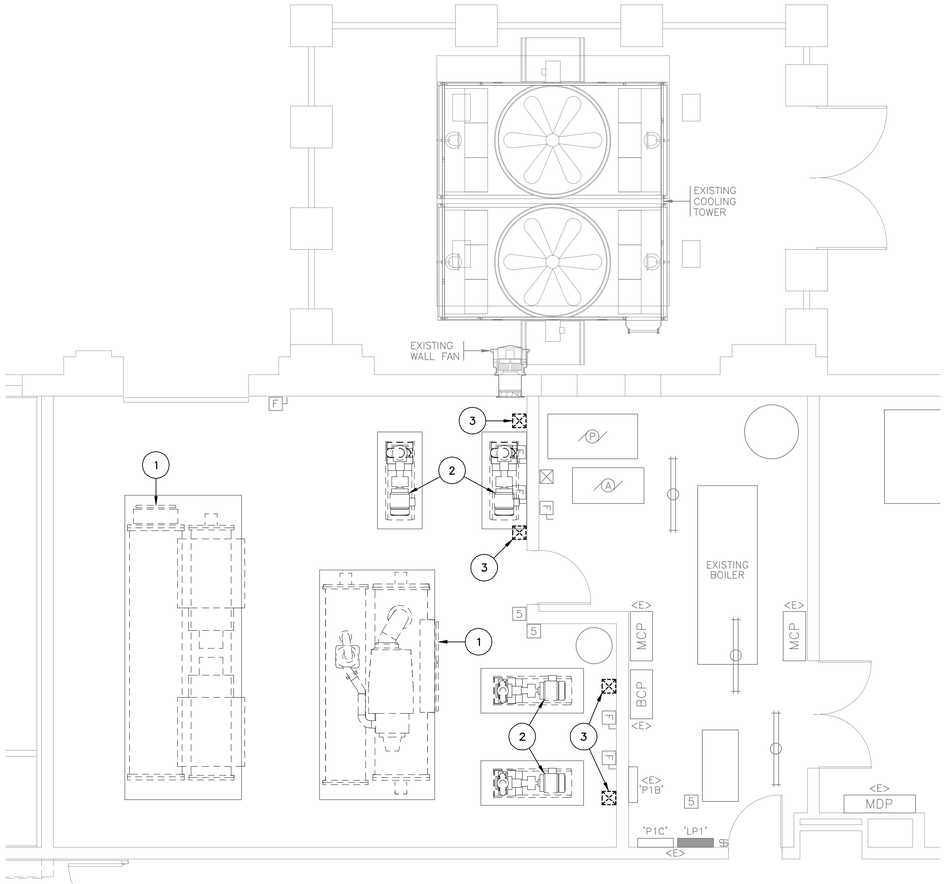
JOB NO. 7321

DATE: APRIL 21, 2025

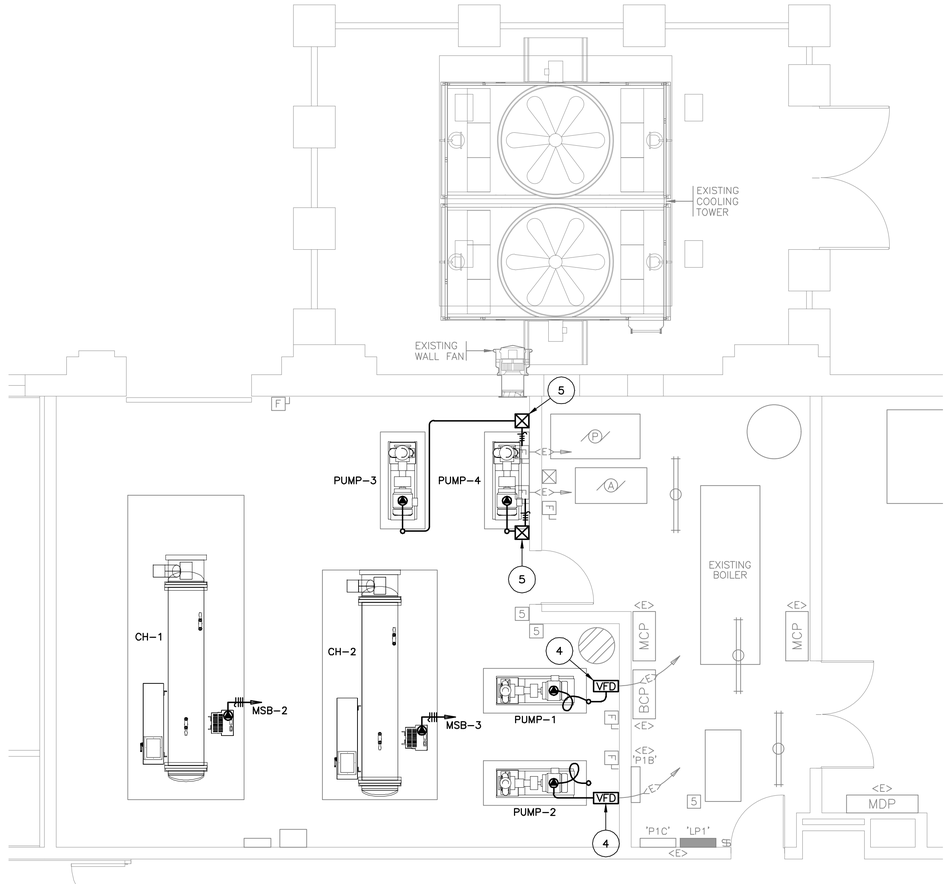
SHEET NO.
E1
OF 2E

DATE DRAWING LAST SAVED: 04/17/25 TIME:09:03:44 DATE DRAWING LAST PLOTTED: 04/17/25 TIME:09:03:48



FIRST FLOOR PLAN 1/4"=1'-0"
DEMOLITION

N



FIRST FLOOR PLAN 1/4"=1'-0"
RENOVATION

N

SHEET NOTES:

1. DISCONNECT POWER TO CHILLER AND PULL FEEDERS BACK TO SOURCE OF SUPPLY.
2. DISCONNECT POWER TO PUMPS AND PULL FEEDERS BACK TO SOURCE OF SUPPLY.
3. REMOVE EXISTING STARTERS AND DISPOSE OF ACCORDINGLY.
4. CONNECT VFD TO EXISTING CIRCUIT.
5. CONNECT STARTER TO EXISTING CIRCUIT.

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J. P. FOREMAN
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REGISTERED PROFESSIONAL ENGINEER
4/21/25

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E2

OF 2E

DATE DRAWING LAST SAVED: 04/17/25 TIME:09:05:06
DATE DRAWING LAST PLOTTED: 04/17/25 TIME:09:05:07