

**ROCK HILL SCHOOLS  
YORK COUNTY DISTRICT 3  
INDEPENDENCE ELEMENTARY SCHOOL  
CHILLER REPLACEMENT**

**BID NO. 21-2245**

**BGA PROJECT NO: 22084**

**MAY 6, 2022**



**PREPARED BY:**



**BUFORD GOFF & ASSOCIATES, INC.**

1331 Elmwood Avenue, Suite 200  
Columbia, South Carolina 29201  
(803) 254-6302

## **TABLE OF CONTENTS**

**PROJECT NUMBER: 22084**

**BID NUMBER: 21-2245**

**PROJECT NAME: Independence Elementary School, Chiller Replacement**

<b><u>SECTION</u></b>	<b><u>No. of Pages</u></b>
<b>Table of Contents</b>	<b>2</b>
<b>Invitation for Construction Bids (BGA2 - 2022 Edition)</b>	<b>1</b>
<b>Instructions to Bidders (AIA Document A701 - 2018 Edition)</b>	<b>14</b>
<b>Lump Sum Bid Form (BGA3 - 2022 Edition)</b>	<b>6</b>
<b>Bid Bond (AIA Document A310 – 2010 Edition or Reference)</b>	<b>1</b>
<b>Standard Form of Agreement between Owner and Contractor</b> (AIA Document A101 - 2017 Edition)	<b>16</b>
<b>General Conditions of the Contract for Construction (AIA Document</b> A201 - 2017 Edition)	<b>47</b>
<b>Performance Bond (BGA8 - 2022 Edition)</b>	<b>2</b>
<b>Labor and Material Payment Bond (BGA9 - 2022 Edition)</b>	<b>2</b>

## **TECHNICAL SPECIFICATIONS**

### **DIVISION 1 - GENERAL REQUIREMENTS**

01 1000	GENERAL REQUIREMENTS
01 1010	SPECIAL CONDITIONS
01 3115	GENERAL CLEANING

### **DIVISION 23 - HVAC**

23 0501	GENERAL HVAC REQUIREMENTS
23 0502	COMMON HVAC MATERIALS
23 0510	DOCUMENTATION AND CLOSEOUT
23 0511	SUBMITTALS
23 0519	METERS AND GAUGES FOR HVAC PIPING
23 0523.01	GENERAL DUTY VALVES FOR HVAC PIPING
23 0529	HANGERS AND SUPPORTS FOR HVAC PIPING
23 0533	HEAT TRACING FOR HVAC PIPING

23 0548	SOUND, VIBRATION, AND SEISMIC CONTROL FOR HVAC
23 0592	SYSTEM START-UP
23 0593	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 0601	HYDRONIC SPECIALTIES
23 0700	HVAC INSULATION
23 0716	HVAC EQUIPMENT INSULATION
23 0719	HVAC PIPING INSULATION
23 0900	INSTRUMENTATION AND CONTROLS FOR HVAC (GENERAL)
23 0900.04	SYSTEM INTEGRATION CONTRACTOR (NIAGARA)
23 0993	SEQUENCE OF OPERATIONS FOR HVAC CONTROLS & POINTS LIST
23 0993.03	SEQUENCE OF OPERATION (HYDRONIC SYSTEMS)
23 2113	HVAC PIPING (GENERAL)
23 2123	HYDRONIC PUMPS

**Division 26 - Electrical**

26 0500	ELECTRICAL GENERAL REQUIREMENTS
26 0501	ELECTRICAL COORDINATION
26 0502	ELECTRICAL DEMOLITION
26 0503	CUTTING, PATCHING & REPAIR
26 0519	WIRE AND CABLE - BUILDING WIRE (600 VOLTS AND BELOW)
26 0526	GROUNDING
26 0533	METALLIC CONDUITS/RACEWAYS AND FITTINGS
26 0535	ELECTRICAL BOXES
26 0548	SEISMIC SUPPORT OF ELECTRICAL EQUIPMENT
26 2726	WIRING DEVICES

**APPENDIX**

APPENDIX A	DRAWING INDEX
APPENDIX B	SPECIFICATION INDEX
APPENDIX C	OWNER PURCHASED CHILLER
APPENDIX D	ORIGINAL POINTS LIST
APPENDIX E	YORK SCHOOL DISTRICT 3, GENERAL BID INSTRUCTIONS

## INVITATION FOR CONSTRUCTION BIDS

### PROJECT

PROJECT NAME: Independence Elementary School, Chiller Replacement, Bid No. 21-2245  
PROJECT NUMBER: 22084 LOCATION : 132 W. Springdale Road, Rock Hill, SC  
DESCRIPTION OF PROJECT: Remove existing air cooled chiller and install Owner purchased air cooled chiller.  
\_\_\_\_\_  
\_\_\_\_\_

### OWNER

OWNER NAME: Rock Hill Schools, York County School District Three  
ADDRESS: 2171 West Main Street  
CITY: Rock Hill STATE: South Carolina ZIP: 29732  
OWNER REPRESENTATIVE: Mr. Kim Melander  
PHONE: 803-981-1156 Email: kmelander@rhmail.org

### ENGINEER

ENGINEERING FIRM: Buford Goff & Associates, Inc.  
ADDRESS: 1331 Elmwood Avenue, Suite 200  
CITY: Columbia STATE: S.C. ZIP: 29201  
ELECTRICAL REPRESENTATIVE: Ed Weaver Email: ed.weaver@bgainc.com  
MECHANICAL REPRESENTATIVE: Dan Reider Email: dan.reider@bgainc.com  
PLUMBING REPRESENTATIVE: N/A Email: \_\_\_\_\_  
PHONE: (803) 254-6302

### ARCHITECT

ARCHITECTURAL FIRM: N/A  
ADDRESS: \_\_\_\_\_  
CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_  
ARCHITECTURAL REPRESENTATIVE: \_\_\_\_\_  
PHONE: \_\_\_\_\_ Email: \_\_\_\_\_

### PRE-BID (NON-MANDATORY)

PRE-BID DATE: Monday, May 16, 2022 TIME: 10:00 AM  
PRE-BID LOCATION: Independence Elementary School, 132 W. Springdale Road, Rock Hill, SC 29732  
COMMENTS: Last day for questions is Wednesday, May 18, 2022, at noon.

### BID

BID DATE: Thursday, May 26, 2022 TIME: 2:00 PM  
LOCATION: District Office, 386 East Black Street, Rock Hill, SC 29730

### BID SECURITY

Bid security is required in an amount not less than 5% of the Base Bid.

### BONDS

The successful Contractor will be required to provide Performance and Labor and Material Payment Bonds, each in the amount of 100% of the Contract Price

### PLANS

AVAILABLE FROM: Administration@bgainc.com \\\nBidders must obtain Bidding Documents/Plans from the above listed source(s) to be listed as an official plan holder. Bidders that rely on copies obtained from any other source do so at their own risk. All written communications with official plan holders and bidders will be via email.

\*\*\*\*\*

APPROVED BY: \_\_\_\_\_ (PROJECT ENGINEER) \_\_\_\_\_ (DATE)

# **AIA® Document A701™ – 2018**

## **Instructions to Bidders**

for the following Project:

*(Name, location, and detailed description)*

Independence Elementary School | Bid No. 21-2245

132 West Springdale Road, Rock Hill, South Carolina 29732

Replace existing chiller.

### **THE OWNER:**

*(Name, legal status, address, and other information)*

Rock Hill Schools | York County School District Three

2171 West Main Street

Rock Hill, South Carolina 29732

### **THE ARCHITECT:**

*(Name, legal status, address, and other information)*

Buford Goff & Associates, Inc. (Engineering Firm)

1331 Elmwood Avenue, Suite 200

Columbia, South Carolina 29201

BGA Project No. 22084

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

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document

## **TABLE OF ARTICLES**

- |   |  |
|---|--|
| 1 | DEFINITIONS                                    |
| 2 | BIDDER'S REPRESENTATIONS                       |
| 3 | BIDDING DOCUMENTS                              |
| 4 | BIDDING PROCEDURES                             |
| 5 | CONSIDERATION OF BIDS                          |
| 6 | POST-BID INFORMATION                           |
| 7 | PERFORMANCE BOND AND PAYMENT BOND              |
| 8 | ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS |

## ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

## ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

## ARTICLE 3 BIDDING DOCUMENTS

### § 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)*

**§ 3.1.2** Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

**§ 3.1.3** Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

**§ 3.1.4** Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

**§ 3.1.5** The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

### **§ 3.2 Modification or Interpretation of Bidding Documents**

**§ 3.2.1** The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

**§ 3.2.2** Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)*

**§ 3.2.3** Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

### **§ 3.3 Substitutions**

**§ 3.3.1** The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

#### **§ 3.3.2 Substitution Process**

**§ 3.3.2.1** Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

**§ 3.3.2.2** Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

**§ 3.3.2.3** If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

**§ 3.3.3** The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

**§ 3.3.4** If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.



§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

#### § 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)*

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

#### ARTICLE 4 BIDDING PROCEDURES

##### § 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

##### § 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

*(Insert the form and amount of bid security.)*

See Invitation For Construction Bids



**§ 4.2.2** The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

**§ 4.2.3** If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

**§ 4.2.4** The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning 45 days after the opening of Bids, withdraw its Bid and request the return of its bid security.

#### **§ 4.3 Submission of Bids**

**§ 4.3.1** A Bidder shall submit its Bid as indicated below:

*(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)*

See Invitation For Construction Bids

**§ 4.3.2** Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

**§ 4.3.3** Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

**§ 4.3.4** The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

**§ 4.3.5** A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

#### **§ 4.4 Modification or Withdrawal of Bid**

**§ 4.4.1** Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

**§ 4.4.2** Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

**§ 4.4.3** After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:

*(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)*

## **ARTICLE 5 CONSIDERATION OF BIDS**

### **§ 5.1 Opening of Bids**

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

### **§ 5.2 Rejection of Bids**

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

### **§ 5.3 Acceptance of Bid (Award)**

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

## **ARTICLE 6 POST-BID INFORMATION**

### **§ 6.1 Contractor's Qualification Statement**

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

### **§ 6.2 Owner's Financial Capability**

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

### **§ 6.3 Submittals**

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

## **ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND**

### **§ 7.1 Bond Requirements**

**§ 7.1.1** If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

**§ 7.1.2** If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

**§ 7.1.3** The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

**§ 7.1.4** Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

*(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)*

### **§ 7.2 Time of Delivery and Form of Bonds**

**§ 7.2.1** The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

**§ 7.2.2** Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

**§ 7.2.3** The bonds shall be dated on or after the date of the Contract.

**§ 7.2.4** The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

## **ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS**

**§ 8.1** Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

- .1 AIA Document A101™-2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.  
*(Insert the complete AIA Document number, including year, and Document title.)*
- .2 AIA Document A101™-2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.  
*(Insert the complete AIA Document number, including year, and Document title.)*
- .3 AIA Document A201™-2017, General Conditions of the Contract for Construction, unless otherwise stated below.  
*(Insert the complete AIA Document number, including year, and Document title.)*
- .4 AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:  
*(Insert the date of the E203-2013.)*

**.5 Drawings**

Number	Title	Date
Appendix A	Drawings Index	05-06-2022

**.6 Specifications**

Section	Title	Date	Pages
Appendix B	Specification Index	05-06-2022	2

**.7 Addenda:**

Number	Date	Pages
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**.8 Other Exhibits:**

*(Check all boxes that apply and include appropriate information identifying the exhibit where required.)*

☐ AIA Document E204™-2017, Sustainable Projects Exhibit, dated as indicated below:  
*(Insert the date of the E204-2017.)*

☐ The Sustainability Plan:

Title	Date	Pages
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Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
Appendix E	General Bid Instructions		12

- .9 Other documents listed below:  
*(List here any additional documents that are intended to form part of the Proposed Contract Documents.)*

# BGA3

## LUMP SUM BID FORM

*Bidders shall submit bids on only Bid Form BGA3.*

**BID SUBMITTED BY:** \_\_\_\_\_  
(Bidder's Name)

**BID SUBMITTED TO:** Rock Hill Schools, York County District 3  
(Owner's Name)

**FOR: PROJECT NAME:** Independence Elementary School, Chiller Replacement

**PROJECT NUMBER:** 22084

**DISTRICT BID NUMBER:** 21-2245

### **OFFER**

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

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

☐ Bid Bond with Power of Attorney      ☐ Electronic Bid Bond      ☐ Cashier's Check  
(Bidder check one)

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

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

**ADDENDA:**      ☐ #1      ☐ #2      ☐ #3      ☐ #4      ☐ #5

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

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

§ 6.1 **BASE BID WORK** (as indicated in the Bidding Documents and generally described as follows): Remove the existing air cooled chiller and replace with a new, owner purchased, air cooled chiller.

\$ \_\_\_\_\_, which sum is hereafter called the Base Bid.

(Bidder to insert Base Bid Amount on line above in figures only)

# BGA3

## LUMP SUM BID FORM

### § 6.2 BID ALTERNATES (as indicated in the Bidding Documents and generally described as follows):

**ALTERNATE # 1** (Brief Description): \_\_\_\_\_

☐ ADD TO or ☐ DEDUCT FROM BASE BID: \$ \_\_\_\_\_

(Bidder to enter amount in figures only. Mark appropriate box to indicate an ADD or DELETE.)

**ALTERNATE # 2** (Brief Description): \_\_\_\_\_

☐ ADD TO or ☐ DEDUCT FROM BASE BID: \$ \_\_\_\_\_

(Bidder to enter amount in figures only. Mark appropriate box to indicate an ADD or DELETE.)

**ALTERNATE # 3** (Brief Description): \_\_\_\_\_

☐ ADD TO or ☐ DEDUCT FROM BASE BID: \$ \_\_\_\_\_

(Bidder to enter amount in figures only. Mark appropriate box to indicate an ADD or DELETE.)

### § 6.3 UNIT PRICES:

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

No.	ITEM	Unit of Measure	ADD	DEDUCT
1.	_____	_____	\$ _____	\$ _____
2.	_____	_____	\$ _____	\$ _____
3.	_____	_____	\$ _____	\$ _____
4.	_____	_____	\$ _____	\$ _____
5.	_____	_____	\$ _____	\$ _____
6.	_____	_____	\$ _____	\$ _____



# BGA3

## LUMP SUM BID FORM

**§ 7. LISTING OF PROPOSED SUBCONTRACTORS PURSUANT TO SECTION 3020(b)(i), CHAPTER 35, TITLE 11 OF THE SOUTH CAROLINA CODE OF LAWS, AS AMENDED**  
*(See Instructions on the following page BF-4)*

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

(A) SUBCONTRACTOR LICENSE CLASSIFICATION or SUBCLASSIFICATION NAME <i>(Completed by Owner)</i>	(B) LICENSE CLASSIFICATION or SUBCLASSIFICATION ABBREVIATION <i>(Completed by Owner)</i>	(C) SUBCONTRACTOR and/or PRIME CONTRACTOR <i>(Required – must be completed by Bidder)</i>	(D) SUBCONTRACTOR'S and/or PRIME CONTRACTOR'S SC LICENSE NUMBER <i>(Requested, but not required)</i>
<b>BASE BID</b>			
Electrical	EL		
<b>ALTERNATE #1</b>			
<b>ALTERNATE #2</b>			
<b>ALTERNATE #3</b>			

If a Bid Alternate is accepted, Subcontractors listed for the Bid Alternate shall be used for the work of both the Alternate and the Base Bid work.

# BGA3

## LUMP SUM BID FORM

### INSTRUCTIONS FOR SUBCONTRACTOR LISTING

1. The subcontractor table of the Bid Form sets forth an Owner developed list of contractor/subcontractor specialties by contractor license category and/or subcategory for which bidder is required to identify the entity (subcontractor(s) and/or himself) Bidder will use to perform the work of each listed specialty.
  - a. **Columns A and B:** The Owner fills out these columns, which identifies the contractor/subcontractor specialties for which the bidder must list either a subcontractor or himself as the entity that will perform this work. Subcontractor specialties are identified by contractor license categories or subcategories listed in Title 40 of the South Carolina Code of laws. If the owner has not identified a specialty, the bidder does not list a subcontractor.
  - b. **Columns C and D:** In these columns, the Bidder identifies the subcontractors it will use for the work of each specialty listed by the Owner in Column A. Bidder must identify only the subcontractor(s) who will perform the work and no others. Bidders should make sure that their identification of each subcontractor is clear and unambiguous. A listing that could be any number of different entities may be cause for rejection of the bid as non-responsive. For example, a listing of M&M without more may be problematic if there are multiple different licensed contractors in South Carolina whose names start with M&M.
2. **Subcontractor Defined:** For purposes of subcontractor listing, a subcontractor is an entity who will perform work or render service to the prime contractor to or about the construction site pursuant to a contract with the prime contractor. Bidder should not identify sub-subcontractors in the spaces provided on the bid form but only those entities with which bidder will contract directly. Likewise, do not identify material suppliers, manufacturers, and fabricators that will not perform physical work at the site of the project but will only supply materials or equipment to the bidder or proposed subcontractor(s).
3. **Subcontractor Qualifications:** Bidder must only list subcontractors who possess a South Carolina Contractor's license with the license classification and/or subclassification identified by the Owner in the first column on the left. The subcontractor license must also be within the appropriate license group for the work of the specialty. If Bidder lists a subcontractor who is not qualified to perform the work, the Bidder will be rejected as non-responsive.
4. **Use of Own forces:** If under the terms of the Bidding Documents, Bidder is qualified to perform the work of a listed specialty and Bidder does not intend to subcontract such work but to use Bidder's own employees to perform such work, the Bidder must insert its own name in the space provided for that specialty.
5. **Use of Multiple Subcontractors:**
  - a. If Bidder intends to use multiple subcontractors to perform the work of a single specialty listing, Bidder must insert the name of each subcontractor Bidder will use, preferably separating the name of each by the word **"and"**. If Bidder intends to use both his own employees to perform a part of the work of a single specialty listing and to use one or more subcontractors to perform the remaining work for that specialty listing, bidder must insert his own name and the name of each subcontractor, preferably separating the name of each with the word **"and"**. Bidder must use each entity listed for the work of a single specialty listing in the performance of that work.
  - b. **Optional Listing Prohibited:** Bidder may not list multiple subcontractors for a specialty listing, in a form that provides the Bidder the option, after bid opening or award, to choose to use one or more but not all the listed subcontractors to perform the work for which they are listed. A listing, which on its face requires subsequent explanation to determine whether it is an optional listing, is non-responsive. If bidder intends to use multiple entities to perform the work for a single specialty listing, bidder must clearly set forth on the bid form such intent. Bidder may accomplish this by simply inserting the word **"and"** between the names of each entity listed for that specialty. The Owner will reject as non-responsive a listing that contains the names of multiple subcontractors separated by a blank space, the word "or", a virgule (that is a /), or any separator that the Owner may reasonably interpret as an optional listing.
6. If Bidder is awarded the contract, bidder must, except with the approval of the Owner for good cause shown, use the listed entities to perform the work for which they are listed.
7. If bidder is awarded the contract, bidder will not be allowed to substitute another entity as subcontractor in place of a subcontractor listed in the subcontractor table of the Bid Form except for one or more of the reasons allowed by the SC Code of Laws.
8. Bidder's failure to identify an entity (subcontractor or himself) to perform the work of a subcontractor specialty listed in the first column on the left will render the Bid non-responsive.

# BGA3

## LUMP SUM BID FORM

### § 8. LIST OF MANUFACTURERS, MATERIAL SUPPLIERS, AND SUBCONTRACTORS OTHER THAN SUBCONTRACTORS LISTED IN SECTION 7 ABOVE (*FOR INFORMATION ONLY*):

Pursuant to instructions in the Invitation for Construction Bids, if any, Bidder will provide to Owner upon the Owner's request and within 24 hours of such request, a listing of manufacturers, material suppliers, and subcontractors, other than those listed in Section 7 above, that Bidder intends to use on the project. Bidder acknowledges and agrees that this list is provided for purposes of determining responsibility and not pursuant to the subcontractor listing requirements of SC Code Ann § 11-35-3020(b)(i).

### § 9. TIME OF CONTRACT PERFORMANCE AND LIQUIDATED DAMAGES

#### a) CONTRACT TIME

Bidder agrees that the Date of Commencement of the Work shall be established in a Notice to Proceed to be issued by the Owner. Bidder agrees to substantially complete the Work within sixty (60) Calendar Days from the Date of Commencement, subject to adjustments as provided in the Contract Documents.

#### b) LIQUIDATED DAMAGES

Bidder further agrees that from the compensation to be paid, the Owner shall retain as Liquidated Damages the amount of \$ 500.00 for each Calendar Day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. This amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty for nonperformance.

### § 10. AGREEMENTS

- a) Bidder agrees that this bid is subject to the requirements of the laws of the State of South Carolina.
- b) Bidder agrees that at any time prior to the issuance of the Notice to Proceed for this Project, this Project may be canceled for the convenience of, and without cost to, the Owner.
- c) Bidder agrees that neither the Owner nor any of its agencies, employees or agents shall be responsible for any bid preparation costs, or any costs or charges of any type, should all bids be rejected or the Project canceled for any reason prior to the issuance of the Notice to Proceed.

### § 11. ELECTRONIC BID BOND

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

**ELECTRONIC BID BOND NUMBER:** \_\_\_\_\_

**SIGNATURE AND TITLE:** \_\_\_\_\_

**BGA3  
LUMP SUM BID FORM****CONTRACTOR'S CLASSIFICATIONS AND SUBCLASSIFICATIONS WITH LIMITATION****SC Contractor's License Number(s):** \_\_\_\_\_**Classification(s) & Limits:** \_\_\_\_\_**Subclassification(s) & Limits:** \_\_\_\_\_

By signing this Bid, the person signing reaffirms all representation and certification made by both the person signing and the Bidder, including without limitation, those appearing in Article 2 of the AIA Document A701, Instructions to Bidders, is expressly incorporated by reference.

**BIDDER'S LEGAL NAME:** \_\_\_\_\_**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_**EMAIL:** \_\_\_\_\_**SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_**PRINT NAME:** \_\_\_\_\_**TITLE:** \_\_\_\_\_

# ***Bid Bond (AIA A310)***

Contractor to Provide

Bid Bond

In the form of

AIA A310

Owner:

Rock Hill Schools, York County District 3

Project:

Independence Elementary School, Chiller Replacement

Bid No. 21-2245



**AIA®**

# Document A101® – 2017

**Standard Form of Agreement Between Owner and Contractor** where the basis of payment is a Stipulated Sum

**AGREEMENT** made as of the \_\_\_\_\_ day of \_\_\_\_\_  
in the year \_\_\_\_\_  
(In words, indicate day, month and year.)

**BETWEEN** the Owner:

(Name, legal status, address and other information)

Rock Hill Schools | York County School District Three  
2171 West Main Street  
Rock Hill, South Carolina 29732

and the Contractor:

(Name, legal status, address and other information)

TBD

TBD

TBD

for the following Project:

(Name, location and detailed description)

Independence Elementary School | Bid No. 21-2245  
132 West Springdale Road, Rock Hill, South Carolina 29730  
Replace existing chiller.

This document has important legal consequences.

Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement.

AIA Document A201®-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

The Architect:

(Name, legal status, address and other information)

Buford Goff & Associates, Inc. (Engineering Firm)  
1331 Elmwood Avenue, Suite 200  
Columbia, South Carolina 29201

The Owner and Contractor agree as follows.

Init.

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## TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

## EXHIBIT A INSURANCE AND BONDS

### ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

### ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

### ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

*(Check one of the following boxes.)*

☐

The date of this Agreement.

☒

A date set forth in a notice to proceed issued by the Owner.

☐

Established as follows:

*(Insert a date or a means to determine the date of commencement of the Work.)*

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.



### § 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)



Not later than sixty  
the date of commencement of the Work.

( 60 ) calendar days from



By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work

Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

### ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be

(\$ ), subject to additions and deductions as provided in the Contract Documents.

### § 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item

Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.

(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item

Price

Conditions for Acceptance

**§ 4.3 Allowances, if any, included in the Contract Sum:**  
(Identify each allowance.)

Item

Price

**§ 4.4 Unit prices, if any:**  
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item

Units and Limitations

Price per Unit (\$0.00)

**§ 4.5 Liquidated damages, if any:**  
(Insert terms and conditions for liquidated damages, if any.)

Five hundred dollars (\$500.00) per day.

**§ 4.6 Other:**  
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

## ARTICLE 5 PAYMENTS

### § 5.1 Progress Payments

**§ 5.1.1** Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

**§ 5.1.2** The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

**§ 5.1.3** Provided that an Application for Payment is received by the Architect not later than the \_\_\_\_\_ day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the \_\_\_\_\_ day of the (same) (following) month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than \_\_\_\_\_ ( ) days after the Architect receives the Application for Payment.  
(Federal, state or local laws may require payment within a certain period of time.)

Init.

**§ 5.1.4** Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

**§ 5.1.5** Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

**§ 5.1.6** In accordance with AIA Document A201®–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

**§ 5.1.6.1** The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

**§ 5.1.6.2** The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

#### **§ 5.1.7 Retainage**

**§ 5.1.7.1** For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

*(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)*

5%

**§ 5.1.7.1.1** The following items are not subject to retainage:

*(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)*

**§ 5.1.7.2** Reduction or limitation of retainage, if any, shall be as follows:

*(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)*

**§ 5.1.7.3** Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

*(Insert any other conditions for release of retainage upon Substantial Completion.)*

**§ 5.1.8** If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

**§ 5.1.9** Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

## **§ 5.2 Final Payment**

**§ 5.2.1** Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

**§ 5.2.2** The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

## **§ 5.3 Interest**

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

*(Insert rate of interest agreed upon, if any.)*

%

## **ARTICLE 6 DISPUTE RESOLUTION**

### **§ 6.1 Initial Decision Maker**

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.

*(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

## § 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

*(Check the appropriate box.)*

- ☒ Arbitration pursuant to Section 15.4 of AIA Document A201–2017
- ☐ Litigation in a court of competent jurisdiction
- ☐ Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

## ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:

*(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)*

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

## ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:

*(Name, address, email address, and other information)*

Ms. Kim Melander  
2171 West Main Street  
Rock Hill, South Carolina 29732  
Email: KMelander@rhmail.org



**§ 8.3** The Contractor's representative:  
*(Name, address, email address, and other information)*

**§ 8.4** Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

**§ 8.5 Insurance and Bonds**

**§ 8.5.1** The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

**§ 8.5.2** The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

**§ 8.6** Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

*(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)*

**§ 8.7** Other provisions:

**ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS**

**§ 9.1** This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

*(Insert the date of the E203-2013 incorporated into this Agreement.)*

**.5 Drawings**

Number	Title	Date
Appendix A	Drawings Index	05-06-2022

**.6 Specifications**

Section	Title	Date	Pages
Appendix B	Specification Index	05-06-2022	2

**.7 Addenda, if any:**

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

**.8 Other Exhibits:**

*(Check all boxes that apply and include appropriate information identifying the exhibit where required.)*

☐

AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:  
*(Insert the date of the E204-2017 incorporated into this Agreement.)*

☐

The Sustainability Plan:

Title	Date	Pages
-------	------	-------





Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
Appendix E	General Bid Conditions		12

**9 Other documents, if any, listed below:**

*(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)*

This Agreement entered into as of the day and year first written above.

\_\_\_\_\_  
**OWNER (Signature)**

\_\_\_\_\_  
*(Printed name and title)*

\_\_\_\_\_  
**CONTRACTOR (Signature)**

\_\_\_\_\_  
*(Printed name and title)*

# **AIA® Document A101® – 2017 Exhibit A**

## **Insurance and Bonds**

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_

*(In words, indicate day, month and year.)*

for the following **PROJECT**:

*(Name and location or address)*

Independence Elementary School | Bid No. 21-2245  
132 West Springdale Road, Rock Hill, South Carolina 29730

### **THE OWNER:**

*(Name, legal status and address)*

Rock Hill Schools | York County School District Three  
2171 West Main Street  
Rock Hill, South Carolina 29732

### **THE CONTRACTOR:**

*(Name, legal status and address)*

TBD  
TBD  
TBD

### **TABLE OF ARTICLES**

- A.1 GENERAL**
- A.2 OWNER'S INSURANCE**
- A.3 CONTRACTOR'S INSURANCE AND BONDS**
- A.4 SPECIAL TERMS AND CONDITIONS**

#### **ARTICLE A.1 GENERAL**

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201®–2017, General Conditions of the Contract for Construction.

#### **ARTICLE A.2 OWNER'S INSURANCE**

##### **§ A.2.1 General**

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

##### **§ A.2.2 Liability Insurance**

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

This document has important legal consequences.

Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A201®–2017, General Conditions of the Contract for Construction. Article 11 of A201–2017 contains additional insurance provisions.

### § A.2.3 Required Property Insurance

§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 **Causes of Loss.** The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:

*(Indicate below the cause of loss and any applicable sub-limit.)*

Cause of Loss

Sub-Limit

§ A.2.3.1.2 **Specific Required Coverages.** The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:

*(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)*

Coverage

Sub-Limit

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 **Deductibles and Self-Insured Retentions.** If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 **Occupancy or Use Prior to Substantial Completion.** The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The

Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

#### **§ A.2.3.3 Insurance for Existing Structures**

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

#### **§ A.2.4 Optional Extended Property Insurance.**

The Owner shall purchase and maintain the insurance selected and described below.

*(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)*

☐

**§ A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance**, to reimburse the Owner for loss of use of the Owner's property, or the inability to conduct normal operations due to a covered cause of loss.

☐

**§ A.2.4.2 Ordinance or Law Insurance**, for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

☐

**§ A.2.4.3 Expediting Cost Insurance**, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

☐

**§ A.2.4.4 Extra Expense Insurance**, to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

☐

**§ A.2.4.5 Civil Authority Insurance**, for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

☐

**§ A.2.4.6 Ingress/Egress Insurance**, for loss due to the necessary interruption of the insured's business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

☐

**§ A.2.4.7 Soft Costs Insurance**, to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

### **§ A.2.5 Other Optional Insurance.**

The Owner shall purchase and maintain the insurance selected below.

*(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)*

☐

**§ A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information.  
*(Indicate applicable limits of coverage or other conditions in the fill point below.)*

☐

**§ A.2.5.2 Other Insurance**  
*(List below any other insurance coverage to be provided by the Owner and any applicable limits.)*

Coverage

Limits

## **ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS**

### **§ A.3.1 General**

**§ A.3.1.1 Certificates of Insurance.** The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

**§ A.3.1.2 Deductibles and Self-Insured Retentions.** The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.



**§ A.3.1.3 Additional Insured Obligations.** To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

**§ A.3.2 Contractor's Required Insurance Coverage**

**§ A.3.2.1** The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:  
*(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)*

**§ A.3.2.2 Commercial General Liability**

**§ A.3.2.2.1** Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than (\$ ) each occurrence, (\$ ) general aggregate, and (\$ ) aggregate for products-completed operations hazard, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

**§ A.3.2.2.2** The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- .3 Claims for bodily injury other than to employees of the insured.
- .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
- .11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

**§ A.3.2.3** Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than (\$ ) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

**§ A.3.2.4** The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

**§ A.3.2.5** Workers' Compensation at statutory limits.

**§ A.3.2.6** Employers' Liability with policy limits not less than (\$ ) each accident, (\$ ) each employee, and (\$ ) policy limit.

**§ A.3.2.7** Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

**§ A.3.2.8** If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

**§ A.3.2.9** If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

**§ A.3.2.10** Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

**§ A.3.2.11** Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

**§ A.3.2.12** Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

### **§ A.3.3 Contractor's Other Insurance Coverage**

**§ A.3.3.1** Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

*(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)*

**§ A.3.3.2** The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

*(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)*

☐

**§ A.3.3.2.1** Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible,

Init.



and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:  
*(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)*

- ☐ **§ A.3.3.2.2 Railroad Protective Liability Insurance**, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate, for Work within fifty (50) feet of railroad property.
- ☐ **§ A.3.3.2.3 Asbestos Abatement Liability Insurance**, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.
- ☐ **§ A.3.3.2.4 Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.**
- ☐ **§ A.3.3.2.5 Property insurance on an "all-risks" completed value form**, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.
- ☐ **§ A.3.3.2.6 Other Insurance**  
*(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)*

Coverage

Limits

#### § A.3.4 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:  
*(Specify type and penal sum of bonds.)*

Type	Penal Sum (\$0.00)
Payment Bond	
Performance Bond	

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

#### ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

Init.



# AIA® Document A201® – 2017

## General Conditions of the Contract for Construction

### for the following PROJECT:

*(Name and location or address)*

Independence Elementary School | Bid No. 21-2245  
132 West Springdale Road, Rock Hill, South Carolina 29730

### THE OWNER:

*(Name, legal status and address)*

Rock Hill Schools | York County School District Three  
2171 West Main Street  
Rock Hill, South Carolina 29732

### THE ARCHITECT:

*(Name, legal status and address)*

Buford Goff & Associates, Inc. (Engineering Firm)  
1331 Elmwood Avenue, Suite 200  
Columbia, South Carolina 29201

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

- 1 GENERAL PROVISIONS
- 2 OWNER
- 3 CONTRACTOR
- 4 ARCHITECT
- 5 SUBCONTRACTORS
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
- 7 CHANGES IN THE WORK
- 8 TIME
- 9 PAYMENTS AND COMPLETION
- 10 PROTECTION OF PERSONS AND PROPERTY
- 11 INSURANCE AND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS
- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
- 15 CLAIMS AND DISPUTES

## INDEX

(Topics and numbers in bold are Section headings.)

### **Acceptance of Nonconforming Work**

9.6.6, 9.9.3, **12.3**

### **Acceptance of Work**

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, **12.3**

### **Access to Work**

**3.16**, 6.2.1, **12.1**

### **Accident Prevention**

**10**

### **Acts and Omissions**

3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5, 10.2.8, 13.3.2, 14.1, 15.1.2, 15.2

### **Addenda**

1.1.1

### **Additional Costs, Claims for**

3.7.4, 3.7.5, 10.3.2, 15.1.5

### **Additional Inspections and Testing**

9.4.2, 9.8.3, 12.2.1, **13.4**

### **Additional Time, Claims for**

3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.6**

### **Administration of the Contract**

3.1.3, **4.2**, 9.4, 9.5

### **Advertisement or Invitation to Bid**

1.1.1

### **Aesthetic Effect**

4.2.13

### **Allowances**

**3.8**

### **Applications for Payment**

4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10

### **Approvals**

2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10.1, 4.2.7, 9.3.2, 13.4.1

### **Arbitration**

8.3.1, 15.3.2, **15.4**

## **ARCHITECT**

**4**

### **Architect, Definition of**

**4.1.1**

### **Architect, Extent of Authority**

2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2, 9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1

### **Architect, Limitations of Authority and Responsibility**

2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2, 9.5.4, 9.6.4, 15.1.4, 15.2

### **Architect's Additional Services and Expenses**

2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4

### **Architect's Administration of the Contract**

3.1.3, 3.7.4, 15.2, 9.4.1, 9.5

### **Architect's Approvals**

2.5, 3.1.3, 3.5, 3.10.2, 4.2.7

### **Architect's Authority to Reject Work**

3.5, 4.2.6, 12.1.2, 12.2.1

### **Architect's Copyright**

1.1.7, 1.5

### **Architect's Decisions**

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1, 13.4.2, 15.2

### **Architect's Inspections**

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4

### **Architect's Instructions**

3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2

### **Architect's Interpretations**

4.2.11, 4.2.12

### **Architect's Project Representative**

4.2.10

### **Architect's Relationship with Contractor**

1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2

### **Architect's Relationship with Subcontractors**

1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3

### **Architect's Representations**

9.4.2, 9.5.1, 9.10.1

### **Architect's Site Visits**

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4

### **Asbestos**

10.3.1

### **Attorneys' Fees**

3.18.1, 9.6.8, 9.10.2, 10.3.3

### **Award of Separate Contracts**

6.1.1, 6.1.2

### **Award of Subcontracts and Other Contracts for Portions of the Work**

**5.2**

### **Basic Definitions**

**1.1**

### **Bidding Requirements**

1.1.1

### **Binding Dispute Resolution**

8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1

### **Bonds, Lien**

7.3.4.4, 9.6.8, 9.10.2, 9.10.3

### **Bonds, Performance, and Payment**

7.3.4.4, 9.6.7, 9.10.3, **11.1.2**, 11.1.3, **11.5**

### **Building Information Models Use and Reliance**

**1.8**

### **Building Permit**

3.7.1

### **Capitalization**

**1.3**

### **Certificate of Substantial Completion**

9.8.3, 9.8.4, 9.8.5

## **Certificates for Payment**

4.2.1, 4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4

## **Certificates of Inspection, Testing or Approval** **13.4.4**

Certificates of Insurance  
9.10.2

## **Change Orders**

1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3, 7.1.2, 7.1.3, 7.2, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2

**Change Orders**, Definition of

## **7.2.1**

## **CHANGES IN THE WORK**

2.2.2, 3.11, 4.2.8, 7, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5

**Claims**, Definition of

## **15.1.1**

**Claims**, Notice of

1.6.2, 15.1.3

## **CLAIMS AND DISPUTES**

3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, 15, 15.4

**Claims and Timely Assertion of Claims**

15.4.1

## **Claims for Additional Cost**

3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, 15.1.5

## **Claims for Additional Time**

3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, 15.1.6

## **Concealed or Unknown Conditions, Claims for** **3.7.4**

**Claims for Damages**

3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3, 11.3.2, 14.2.4, 15.1.7

**Claims Subject to Arbitration**

15.4.1

## **Cleaning Up**

3.15, 6.3

**Commencement of the Work**, Conditions Relating to

2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3, 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, 15.1.5

## **Commencement of the Work**, Definition of **8.1.2**

## **Communications**

3.9.1, 4.2.4

## **Completion, Conditions Relating to**

3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1, 9.10, 12.2, 14.1.2, 15.1.2

## **COMPLETION, PAYMENTS AND** **9**

**Completion, Substantial**

3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2

**Compliance with Laws**

2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3

**Concealed or Unknown Conditions**

3.7.4, 4.2.8, 8.3.1, 10.3

## **Conditions of the Contract**

1.1.1, 6.1.1, 6.1.4

**Consent, Written**

3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2, 15.4.4.2

## **Consolidation or Joinder**

15.4.4

## **CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

1.1.4, 6

**Construction Change Directive**, Definition of  
**7.3.1**

## **Construction Change Directives**

1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, 7.3, 9.3.1.1

**Construction Schedules**, Contractor's

3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2

## **Contingent Assignment of Subcontracts**

5.4, 14.2.2.2

## **Continuing Contract Performance** **15.1.4**

**Contract**, Definition of

## **1.1.2**

## **CONTRACT, TERMINATION OR SUSPENSION OF THE**

5.4.1.1, 5.4.2, 11.5, 14

**Contract Administration**

3.1.3, 4, 9.4, 9.5

**Contract Award and Execution**, Conditions Relating to

3.7.1, 3.10, 5.2, 6.1

**Contract Documents**, Copies Furnished and Use of  
1.5.2, 2.3.6, 5.3

**Contract Documents**, Definition of  
**1.1.1**

## **Contract Sum**

2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, 9.1, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4, 14.3.2, 15.1.4.2, 15.1.5, 15.2.5

**Contract Sum**, Definition of  
**9.1**

**Contract Time**

1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5

**Contract Time**, Definition of  
**8.1.1**

## **CONTRACTOR**

3

**Contractor**, Definition of

3.1, 6.1.2

## **Contractor's Construction and Submittal Schedules**

3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2

**Contractor's Employees**

2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.3, 14.1, 14.2.1.1



## **Contractor's Liability Insurance**

### **11.1**

Contractor's Relationship with Separate Contractors and Owner's Forces

3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4

Contractor's Relationship with Subcontractors

1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2,

9.6.7, 9.10.2, 11.2, 11.3, 11.4

Contractor's Relationship with the Architect

1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2,

3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2,

6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6,

10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1

Contractor's Representations

3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2

Contractor's Responsibility for Those Performing the Work

3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8

Contractor's Review of Contract Documents

3.2

Contractor's Right to Stop the Work

2.2.2, 9.7

Contractor's Right to Terminate the Contract

14.1

Contractor's Submittals

3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2,

9.8.3, 9.9.1, 9.10.2, 9.10.3

Contractor's Superintendent

3.9, 10.2.6

Contractor's Supervision and Construction

Procedures

1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4,

7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4

Coordination and Correlation

1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1

Copies Furnished of Drawings and Specifications

1.5, 2.3.6, 3.11

Copyrights

1.5, 3.17

Correction of Work

2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, 12.2, 12.3,

15.1.3.1, 15.1.3.2, 15.2.1

**Correlation and Intent of the Contract Documents**

**1.2**

**Cost, Definition of**

**7.3.4**

**Costs**

2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3,

7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6,

11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14

**Cutting and Patching**

**3.14, 6.2.5**

Damage to Construction of Owner or Separate

Contractors

3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4

Damage to the Work

3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4

Damages, Claims for

3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2,

11.3, 14.2.4, 15.1.7

Damages for Delay

6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2

**Date of Commencement of the Work, Definition of**

**8.1.2**

**Date of Substantial Completion, Definition of**

**8.1.3**

**Day, Definition of**

**8.1.4**

Decisions of the Architect

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4,

7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2,

14.2.2, 14.2.4, 15.1, 15.2

**Decisions to Withhold Certification**

9.4.1, 9.5, 9.7, 14.1.1.3

Defective or Nonconforming Work, Acceptance,

Rejection and Correction of

2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3,

9.10.4, 12.2.1

Definitions

1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1,

6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1

**Delays and Extensions of Time**

**3.2, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7,**

**10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5**

**Digital Data Use and Transmission**

**1.7**

Disputes

6.3, 7.3.9, 15.1, 15.2

**Documents and Samples at the Site**

**3.11**

**Drawings, Definition of**

**1.1.5**

Drawings and Specifications, Use and Ownership of

3.11

Effective Date of Insurance

8.2.2

**Emergencies**

**10.4, 14.1.1.2, 15.1.5**

Employees, Contractor's

3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2,

10.3.3, 11.3, 14.1, 14.2.1.1

Equipment, Labor, or Materials

1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,

4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3,

9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2

Execution and Progress of the Work

1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1,

3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1,

9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4

Extensions of Time

3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2,

10.4, 14.3, 15.1.6, **15.2.5**

**Failure of Payment**

**9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2**

Faulty Work  
(See Defective or Nonconforming Work)  
**Final Completion and Final Payment**  
4.2.1, 4.2.9, 9.8.2, 9.10, 12.3, 14.2.4, 14.4.3  
Financial Arrangements, Owner's  
2.2.1, 13.2.2, 14.1.1.4  
**GENERAL PROVISIONS**  
**1**  
**Governing Law**  
**13.1**  
Guarantees (See Warranty)  
**Hazardous Materials and Substances**  
10.2.4, 10.3  
Identification of Subcontractors and Suppliers  
5.2.1  
**Indemnification**  
3.17, 3.18, 9.6.8, 9.10.2, 10.3.3, 11.3  
**Information and Services Required of the Owner**  
2.1.2, 2.2, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5,  
9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2,  
14.1.1.4, 14.1.4, 15.1.4  
**Initial Decision**  
**15.2**  
**Initial Decision Maker, Definition of**  
1.1.8  
Initial Decision Maker, Decisions  
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5  
Initial Decision Maker, Extent of Authority  
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5  
**Injury or Damage to Person or Property**  
**10.2.8, 10.4**  
Inspections  
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,  
9.9.2, 9.10.1, 12.2.1, 13.4  
Instructions to Bidders  
1.1.1  
Instructions to the Contractor  
3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2  
**Instruments of Service, Definition of**  
**1.1.7**  
Insurance  
6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5,  
**11**  
Insurance, Notice of Cancellation or Expiration  
11.1.4, 11.2.3  
**Insurance, Contractor's Liability**  
**11.1**  
Insurance, Effective Date of  
8.2.2, 14.4.2  
**Insurance, Owner's Liability**  
**11.2**  
**Insurance, Property**  
**10.2.5, 11.2, 11.4, 11.5**  
Insurance, Stored Materials  
9.3.2  
**INSURANCE AND BONDS**  
**11**

Insurance Companies, Consent to Partial Occupancy  
9.9.1  
Insured loss, Adjustment and Settlement of  
11.5  
Intent of the Contract Documents  
1.2.1, 4.2.7, 4.2.12, 4.2.13  
**Interest**  
**13.5**  
**Interpretation**  
1.1.8, 1.2.3, 1.4, 4.1.1, 5.1, 6.1.2, 15.1.1  
Interpretations, Written  
4.2.11, 4.2.12  
Judgment on Final Award  
15.4.2  
**Labor and Materials, Equipment**  
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,  
5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1,  
10.2.4, 14.2.1.1, 14.2.1.2  
Labor Disputes  
8.3.1  
Laws and Regulations  
1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4,  
9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8,  
15.4  
Liens  
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8  
Limitations, Statutes of  
12.2.5, 15.1.2, 15.4.1.1  
Limitations of Liability  
3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6,  
4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3,  
11.3, 12.2.5, 13.3.1  
Limitations of Time  
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,  
5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,  
9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15,  
15.1.2, 15.1.3, 15.1.5  
**Materials, Hazardous**  
**10.2.4, 10.3**  
Materials, Labor, Equipment and  
1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,  
5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2,  
10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2  
Means, Methods, Techniques, Sequences and  
Procedures of Construction  
3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2  
Mechanic's Lien  
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8  
**Mediation**  
8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, 15.3, 15.4.1,  
15.4.1.1  
**Minor Changes in the Work**  
1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, 7.4  
**MISCELLANEOUS PROVISIONS**  
**13**  
**Modifications, Definition of**  
**1.1.1**



Modifications to the Contract  
1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7,  
10.3.2

## **Mutual Responsibility**

### **6.2**

#### **Nonconforming Work, Acceptance of**

9.6.6, 9.9.3, 12.3

Nonconforming Work, Rejection and Correction of  
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4,  
12.2

#### **Notice**

1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2, 2.2.3, 2.2.4, 2.5, 3.2.4,  
3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4,  
8.2.2, 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1,  
13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5,  
15.1.6, 15.4.1

Notice of Cancellation or Expiration of Insurance  
11.1.4, 11.2.3

#### **Notice of Claims**

1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, 15.1.3, 15.1.5,  
15.1.6, 15.2.8, 15.3.2, 15.4.1

#### **Notice of Testing and Inspections**

13.4.1, 13.4.2

#### **Observations, Contractor's**

3.2, 3.7.4

#### **Occupancy**

2.3.1, 9.6.6, 9.8

#### **Orders, Written**

1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2,  
14.3.1

## **OWNER**

### **2**

#### **Owner, Definition of**

##### **2.1.1**

#### **Owner, Evidence of Financial Arrangements**

2.2, 13.2.2, 14.1.1.4

#### **Owner, Information and Services Required of the**

2.1.2, 2.2, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5,  
9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1,  
13.4.2, 14.1.1.4, 14.1.4, 15.1.4

#### **Owner's Authority**

1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2,  
4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1,  
7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2,  
10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4,  
15.2.7

#### **Owner's Insurance**

##### **11.2**

#### **Owner's Relationship with Subcontractors**

1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2

#### **Owner's Right to Carry Out the Work**

2.5, 14.2.2

#### **Owner's Right to Clean Up**

##### **6.3**

#### **Owner's Right to Perform Construction and to**

#### **Award Separate Contracts**

##### **6.1**

#### **Owner's Right to Stop the Work**

##### **2.4**

#### **Owner's Right to Suspend the Work**

##### **14.3**

#### **Owner's Right to Terminate the Contract**

14.2, 14.4

#### **Ownership and Use of Drawings, Specifications and Other Instruments of Service**

1.1.1, 1.1.6, 1.1.7, 1.5, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12,  
5.3

#### **Partial Occupancy or Use**

9.6.6, 9.9

#### **Patching, Cutting and**

3.14, 6.2.5

#### **Patents**

3.17

#### **Payment, Applications for**

4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1,  
14.2.3, 14.2.4, 14.4.3

#### **Payment, Certificates for**

4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1,  
9.10.3, 14.1.1.3, 14.2.4

#### **Payment, Failure of**

9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2

#### **Payment, Final**

4.2.1, 4.2.9, 9.10, 12.3, 14.2.4, 14.4.3

#### **Payment Bond, Performance Bond and**

7.3.4.4, 9.6.7, 9.10.3, 11.1.2

#### **Payments, Progress**

9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4

## **PAYMENTS AND COMPLETION**

### **9**

#### **Payments to Subcontractors**

5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2

#### **PCB**

10.3.1

#### **Performance Bond and Payment Bond**

7.3.4.4, 9.6.7, 9.10.3, 11.1.2

#### **Permits, Fees, Notices and Compliance with Laws**

2.3.1, 3.7, 3.13, 7.3.4.4, 10.2.2

## **PERSONS AND PROPERTY, PROTECTION OF**

### **10**

#### **Polychlorinated Biphenyl**

10.3.1

#### **Product Data, Definition of**

3.12.2

#### **Product Data and Samples, Shop Drawings**

3.11, 3.12, 4.2.7

#### **Progress and Completion**

4.2.2, 8.2, 9.8, 9.9.1, 14.1.4, 15.1.4

#### **Progress Payments**

9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4

#### **Project, Definition of**

1.1.4

#### **Project Representatives**

4.2.10

## **Property Insurance**

10.2.5, 11.2

Proposal Requirements

1.1.1

## **PROTECTION OF PERSONS AND PROPERTY**

10

Regulations and Laws

1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4

Rejection of Work

4.2.6, 12.2.1

Releases and Waivers of Liens

9.3.1, 9.10.2

Representations

3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1

Representatives

2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1

Responsibility for Those Performing the Work

3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10

Retainage

9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3

Review of Contract Documents and Field

Conditions by Contractor

3.2, 3.12.7, 6.1.3

Review of Contractor's Submittals by Owner and Architect

3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2

Review of Shop Drawings, Product Data and Samples by Contractor

3.12

Rights and Remedies

1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2, 12.2.4, 13.3, 14, 15.4

Royalties, Patents and Copyrights

3.17

Rules and Notices for Arbitration

15.4.1

Safety of Persons and Property

10.2, 10.4

Safety Precautions and Programs

3.3.1, 4.2.2, 4.2.7, 5.3, 10.1, 10.2, 10.4

Samples, Definition of

3.12.3

Samples, Shop Drawings, Product Data and

3.11, 3.12, 4.2.7

Samples at the Site, Documents and

3.11

Schedule of Values

9.2, 9.3.1

Schedules, Construction

3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2

Separate Contracts and Contractors

1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2

Separate Contractors, Definition of

6.1.1

Shop Drawings, Definition of

3.12.1

Shop Drawings, Product Data and Samples

3.11, 3.12, 4.2.7

Site, Use of

3.13, 6.1.1, 6.2.1

Site Inspections

3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4

Site Visits, Architect's

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4

Special Inspections and Testing

4.2.6, 12.2.1, 13.4

Specifications, Definition of

1.1.6

Specifications

1.1.1, 1.1.6, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14

Statute of Limitations

15.1.2, 15.4.1.1

Stopping the Work

2.2.2, 2.4, 9.7, 10.3, 14.1

Stored Materials

6.2.1, 9.3.2, 10.2.1.2, 10.2.4

Subcontractor, Definition of

5.1.1

## **SUBCONTRACTORS**

5

Subcontractors, Work by

1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7

Subcontractual Relations

5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1

Submittals

3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3

Submittal Schedule

3.10.2, 3.12.5, 4.2.7

Subrogation, Waivers of

6.1.1, 11.3

Substances, Hazardous

10.3

Substantial Completion

4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2

Substantial Completion, Definition of

9.8.1

Substitution of Subcontractors

5.2.3, 5.2.4

Substitution of Architect

2.3.3

Substitutions of Materials

3.4.2, 3.5, 7.3.8

Sub-subcontractor, Definition of

5.1.2

Subsurface Conditions

3.7.4

Successors and Assigns

13.2

## **Superintendent**

3.9, 10.2.6

## **Supervision and Construction Procedures**

1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4

## **Suppliers**

1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6, 9.10.5, 14.2.1

## **Surety**

5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2, 15.2.7

## **Surety, Consent of**

9.8.5, 9.10.2, 9.10.3

## **Surveys**

1.1.7, 2.3.4

## **Suspension by the Owner for Convenience**

14.3

## **Suspension of the Work**

3.7.5, 5.4.2, 14.3

## **Suspension or Termination of the Contract**

5.4.1.1, 14

## **Taxes**

3.6, 3.8.2.1, 7.3.4.4

## **Termination by the Contractor**

14.1, 15.1.7

## **Termination by the Owner for Cause**

5.4.1.1, 14.2, 15.1.7

## **Termination by the Owner for Convenience**

14.4

## **Termination of the Architect**

2.3.3

## **Termination of the Contractor Employment**

14.2.2

## **TERMINATION OR SUSPENSION OF THE CONTRACT**

14

## **Tests and Inspections**

3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, 13.4

## **TIME**

8

## **Time, Delays and Extensions of**

3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5

## **Time Limits**

2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,

9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2, 15.1.3, 15.4

## **Time Limits on Claims**

3.7.4, 10.2.8, 15.1.2, 15.1.3

## **Title to Work**

9.3.2, 9.3.3

## **UNCOVERING AND CORRECTION OF WORK**

12

## **Uncovering of Work**

12.1

## **Unforeseen Conditions, Concealed or Unknown**

3.7.4, 8.3.1, 10.3

## **Unit Prices**

7.3.3.2, 9.1.2

## **Use of Documents**

1.1.1, 1.5, 2.3.6, 3.12.6, 5.3

## **Use of Site**

3.13, 6.1.1, 6.2.1

## **Values, Schedule of**

9.2, 9.3.1

## **Waiver of Claims by the Architect**

13.3.2

## **Waiver of Claims by the Contractor**

9.10.5, 13.3.2, 15.1.7

## **Waiver of Claims by the Owner**

9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, 15.1.7

## **Waiver of Consequential Damages**

14.2.4, 15.1.7

## **Waiver of Liens**

9.3, 9.10.2, 9.10.4

## **Waivers of Subrogation**

6.1.1, 11.3

## **Warranty**

3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2, 15.1.2

## **Weather Delays**

8.3, 15.1.6.2

## **Work, Definition of**

1.1.3

## **Written Consent**

1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3, 13.2, 13.3.2, 15.4.4.2

## **Written Interpretations**

4.2.11, 4.2.12

## **Written Orders**

1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

## **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 protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

### **§ 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 protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, 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.

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## PERFORMANCE BOND

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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

**WHEREAS**, Contractor has by written agreement dated \_\_\_\_\_ entered into a contract with Owner to construct

Project Name: Independence Elementary School, Chiller Replacement, District Bid No. 21-2245

Project Number: 22084

Brief Description of Awarded Work: Replace the existing air cooled chiller with a new, Owner purchased, air cooled chiller.

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

Name: Buford Goff & Associates, Inc.

Address: 1331 Elmwood Avenue, Suite 200

Columbia, S.C. 29201

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

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

**DATED this** \_\_\_\_\_ **day of** \_\_\_\_\_, **2**  
*(shall be no earlier than Date of Contract)*

**BOND NUMBER** \_\_\_\_\_

### CONTRACTOR

**By:** \_\_\_\_\_  
(Seal)

**Print Name:** \_\_\_\_\_

**Print Title:** \_\_\_\_\_

**Witness:** \_\_\_\_\_

### SURETY

**By:** \_\_\_\_\_  
(Seal)

**Print Name:** \_\_\_\_\_

**Print Title:** \_\_\_\_\_  
*(Attach Power of Attorney)*

**Witness:** \_\_\_\_\_

*(Additional Signatures, if any, appear on attached page)*

**BGA8****PERFORMANCE BOND****NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the full and faithful performance of the contract, which is incorporated herein by reference.
2. If the Contractor performs the contract, the Surety and the Contractor have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.
3. The Surety's obligation under this Bond shall arise after:
  - 3.1 The Owner has notified the Contractor and the Surety at the address described in paragraph 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; or
  - 3.2 The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the Contract.
4. The Surety shall, within 15 days after receipt of notice of the Owner's declaration of a Contractor Default, and at the Surety's sole expense, take one of the following actions:
  - 4.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Contract; or
  - 4.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the Owner the amount of damages as described in paragraph 7 in excess of the Balance of the Contract Sum incurred by the Owner resulting from the Contractor Default; or
  - 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and:
    - 4.4.1 After investigation, determine the amount for which it may be liable to the Owner and, within 60 days of waiving its rights under this paragraph, tender payment thereof to the Owner; or
    - 4.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons therefore.
5. Provided Surety has proceeded under paragraphs 4.1, 4.2, or 4.3, the Owner shall pay the Balance of the Contract Sum to either:
  - 5.1 Surety in accordance with the terms of the Contract; or
  - 5.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.
- 5.3 The balance of the Contract Sum due either the Surety or another contractor shall be reduced by the amount of damages as described in paragraph 7.
6. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond 15 days after receipt of written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.
  - 6.1 If the Surety proceeds as provided in paragraph 4.4 and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, then without further notice the Owner shall be entitled to enforce any remedy available to the Owner.
  - 6.2 Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the Dispute Resolution process defined in the Contract Documents and the laws of the State of South Carolina.
7. After the Owner has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall be those of the Contractor under the Contract, and the responsibilities of the Owner to the Surety shall be those of the Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Sum to mitigation of costs and damages on the Contract, the Surety is obligated to the Owner without duplication for:
  - 7.1 The responsibilities of the Contractor for correction of defective Work and completion of the Contract; and
  - 7.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and
  - 7.3 Damages awarded pursuant to the Dispute Resolution Provisions of the Contract. Surety may join in any Dispute Resolution proceeding brought under the Contract and shall be bound by the results thereof; and
  - 7.4 Liquidated Damages, or if no Liquidated Damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Sum shall not be reduced or set-off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.
9. The Surety hereby waives notice of any change, including changes of time, to the contract or to related subcontracts, purchase orders and other obligations.
10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. Definitions
  - 11.1 Balance of the Contract Sum: The total amount payable by the Owner to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts to be received by the Owner in settlement of insurance or other Claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.
  - 11.2 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform the Contract or otherwise to comply with the terms of the Contract.

# BGA9

## LABOR & MATERIAL PAYMENT BOND

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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

**WHEREAS**, Contractor has by written agreement dated \_\_\_\_\_ entered into a contract with Owner to construct

Project Name: Independence Elementary School, Chiller Replacement, District Bid No. 21-2245

Project Number: 22084

Brief Description of Awarded Work: Replace the existing air cooled chiller with a new, Owner purchased, air cooled chiller.

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

Name: Buford Goff & Associates, Inc.

Address: 1331 Elmwood Avenue, Suite 200

Columbia, S.C. 29201

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

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

**DATED this** \_\_\_\_\_ **day of** \_\_\_\_\_, **2** \_\_\_\_\_  
*(shall be no earlier than Date of Contract)*

**BOND NUMBER** \_\_\_\_\_

**CONTRACTOR**

**SURETY**

**By:** \_\_\_\_\_  
(Seal)

**By:** \_\_\_\_\_  
(Seal)

**Print Name:** \_\_\_\_\_

**Print Name:** \_\_\_\_\_

**Print Title:** \_\_\_\_\_

**Print Title:** \_\_\_\_\_  
*(Attach Power of Attorney)*

**Witness:** \_\_\_\_\_

**Witness:** \_\_\_\_\_

*(Additional Signatures, if any, appear on attached page)*

**LABOR AND MATERIAL PAYMENT BOND**

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**NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for all labor, materials and equipment required for use in the performance of the Contract, which is incorporated herein by reference.
  2. With respect to the Owner, this obligation shall be null and void if the Contractor:
    - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants; and
    - 2.2 Defends, indemnifies and holds harmless the Owner from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract.
  3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
  4. With respect to Claimants, and subject to the provisions of Title 29, Chapter 5 and the provisions of §11-35-3030(2)(c) of the SC Code of Laws, as amended, the Surety's obligation under this Bond shall arise as follows:
    - 4.1 Every person who has furnished labor, material or rental equipment to the Contractor or its subcontractors for the work specified in the Contract, and who has not been paid in full therefore before the expiration of a period of ninety (90) days after the date on which the last of the labor was done or performed by him or material or rental equipment was furnished or supplied by him for which such claim is made, shall have the right to sue on the payment bond for the amount, or the balance thereof, unpaid at the time of institution of such suit and to prosecute such action for the sum or sums justly due him.
    - 4.2 A remote claimant shall have a right of action on the payment bond upon giving written notice by certified or registered mail to the Contractor within ninety (90) days from the date on which such person did or performed the last of the labor or furnished or supplied the last of the material or rental equipment upon which such claim is made.
    - 4.3 Every suit instituted upon a payment bond shall be brought in a court of competent jurisdiction for the county or circuit in which the construction contract was to be performed, but no such suit shall be commenced after the expiration of one year after the day on which the last of the labor was performed or material or rental equipment was supplied by the person bringing suit.
  5. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
    - 5.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
    - 5.2 Pay or arrange for payment of any undisputed amounts.
    - 5.3 The Surety's failure to discharge its obligations under this paragraph 5 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a claim. However, if the Surety fails to discharge its obligations under this paragraph 5, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs to recover any sums found to be due and owing to the Claimant.
  6. Amounts owed by the Owner to the Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the contractor in the performance of the Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's prior right to use the funds for the completion of the Work.
  7. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Contract. The Owner shall not be liable for payment of any costs or expenses of any claimant under this bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
  8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
  9. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the Owner or the contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
  10. By the Contractor furnishing and the Owner accepting this Bond, they agree that this Bond has been furnished to comply with the statutory requirements of the South Carolina Code of Laws, as amended, and further, that any provision in this Bond conflicting with said statutory requirements shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
  11. Upon request of any person or entity appearing to be a potential beneficiary of this bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
  12. Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the laws of the State of South Carolina.
- ### 13. DEFINITIONS
- 13.1 Claimant: An individual or entity having a direct contract with the Contractor or with a Subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the Contractor and the Contractor's Subcontractors, and all other items for which a mechanic's lien might otherwise be asserted.
  - 13.2 Remote Claimant: A person having a direct contractual relationship with a subcontractor of the Contractor or subcontractor, but no contractual relationship expressed or implied with the Contractor.
  - 13.3 Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.



## SECTION 01 1000 – GENERAL REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 MATERIALS AND WORKMANSHIP:

- A. Unless otherwise specified, all materials shall be new, of the best quality consistent with the type and grade specified and of a type and quality suitable for the purpose they are to serve. All employees shall be competent, experienced and skilled in their trades. Workmanship throughout shall be of the first quality equal to the best recognized practice in the field concerned.

#### 1.2 APPROVAL OF SUBSTITUTIONS:

- A. Specific reference in the specifications to any article, device, product, materials, fixture, form or type of construction, etc., by name, make, or catalog number, with or without the words "or equal", shall be interpreted as establishing a standard of quality.
- B. Requests for written approval to substitute materials or equipment considered by the Contractor as equal to those specified shall be submitted for approval in writing ten (10) calendar days prior to bid opening date to the Engineer. Requests shall be accompanied by samples, literature, and information as necessary to fully identify and allow appraisal of the material or equipment. Submittals shall be concise, clear, and brief as possible. Incomplete submittals or submittals requiring lengthy research to ascertain quality will not be considered. No substitutions will be considered within ten (10) days prior to the bid opening.
- C. Approval of the Engineer to use materials or equipment, if granted, will be in the form of a written addendum.
- D. The judgment and decision of the Engineer to approve or reject a request for substitution is final.
- E. Submittals for bidding are not required on items specified by model number or when a manufacturer listed by name can provide equipment with no deviations from the specifications. Submit all other items for approval.
- F. Items approved shall not be construed as authorizing any deviations from the plans and specifications unless such deviations are clearly indicated in the form of a letter that is enclosed with the submittals.
- G. Contractor shall be responsible for verifying all dimensions with available space. If, in the opinion of the engineer, the physical dimensions do not permit the substituted material or equipment to be properly operated, maintained, serviced, or otherwise accessed, or the physical dimension adversely impact other components, a system's ability to be operated, maintained, serviced or otherwise accessed, the material or equipment shall be replaced at the contractor's expense.

1.3 EXAMINATION OF CONDITIONS:

- A. The Contractor, subcontractors and material suppliers shall carefully examine the drawings and specifications and all job conditions and call to the attention of the Engineer any conditions that will interfere with or preclude a first-class and serviceable installation of the product they propose to furnish. The Contractor shall notify the Engineer, in writing, should any conditions exist that would in any way affect a manufacturer's guarantee, warranty or responsibility for proper performance and service of an item.

1.4 FITTING JOB CONDITIONS:

- A. The Contractor, subcontractors and material suppliers shall be responsible for inspecting all job conditions affecting the installation of an item and taking all field measurements required prior to fabrication of an item to insure that the item concerned will integrate properly with all adjacent materials and fit all other conditions as they exist or will exist in the finished building.
- B. Work in connection with the installation of an item shall be coordinated with all other affected work and trades.
- C. Sleeves, anchors and other items that must be embedded in or that otherwise affect other portions of work shall be located and set while such portions of the work are in progress.

1.5 TESTS, CERTIFICATIONS AND APPROVAL BY OTHER AUTHORITIES:

- A. Where tests, certificates or approvals by authorities other than the Engineer are required, the Contractor shall have such tests performed and procure such certification or approvals. The contractor shall forward a minimum of four copies of the results of the test, the certificates, or approvals to the Engineer prior to the proceeding with work involved. Such laboratories and/or authorities as are employed for this purpose shall be competent, with a generally recognized reputation in the field concerned, and shall be subject to approval of the Engineer.

1.6 INCLUSION OF ACCESSORIES:

- A. Unless otherwise specifically mentioned, all anchors, bolts, screws, fittings, fillers, hardware, accessories, trim and other parts required for or in connection with an item of material to make a complete, serviceable, finished and first quality installation shall be furnished and installed as part of the item whether called for by the specifications or not.

1.7 PROTECTION:

- A. All materials shall be shipped and stored and handled in a manner that will afford protection and insure their being in "like new" condition at the time they are incorporated in the work. After installation, they shall be properly protected against damage to insure their being in "like new" condition when the building as a whole is completed and accepted by the Owner.

1.8 INSTALLATION:

- A. All items shall be installed in a workmanlike manner in accordance with the best recognized practice in the field concerned. Manufactured items shall be installed in strict accordance with the manufacturer's printed directions, specifications and recommendations for an installation of highest quality.
- B. All working parts shall be properly adjusted after installation and left in proper working order.
- C. Items shall in all cases be installed plumb and true and in proper relation to surrounding materials.

1.9 ANCHORING AND TYING:

- A. All materials shall be securely anchored and/or tied together in accordance with the best recognized practice in the field whether shown, specified or not.
- B. Material shall be installed in a permanent manner that will permit expansion, contraction and other minor movements and normal use of the structure without structural features becoming impaired and without any of its parts becoming loose.
- C. Ties and anchors shall be best quality for the purpose.

1.10 REFERENCE TO STANDARD SPECIFICATIONS:

- A. When standard specifications such as The American Society for Testing and Materials, Federal Specifications, Department of Commerce (Commercial Standards), American Institute of Steel Construction, or other well known public or trade associations are cited as a standard to govern materials and/or workmanship, such specifications or portions thereof as referred to shall be equally as binding and have the full force and effect as though it was copied into these specifications.
- B. Unless otherwise specifically stated, the standard specifications referred to shall be considered as the latest edition and/or revision of such specifications that is in effect on the date of the Invitation for Bids. In case of any conflicts between standard specifications and the written portion of the specifications, the specifications as actually written herein will govern.

1.11 REFERENCES TO MANUFACTURER'S PUBLICATIONS:

- A. Unless otherwise specifically stated, all manufacturer's catalogs, specifications, instructions or other information or literature that are referred to in the specifications shall be considered as the latest edition and/or revision of such publication that is in effect on the date of the Invitation for Bids.

1.12 HAZARDOUS MATERIALS:

A. Existing Conditions:

1. In the event the contractor for the project encounters on the site material believed to be asbestos, polychlorinated biphenyl (PCB), lead paints, fuel contaminated soil, or any other material considered hazardous, the contractor shall immediately stop work in the area affected and report the condition to the Engineer in writing by the fastest practical method.
2. The contractor shall not resume work until the contractor is advised in writing that the material is not hazardous and/or does not pose a risk to the contractor.

B. New Materials:

1. Contractors are hereby advised that the use of the following materials or products containing these materials in any quantity or any form is strictly forbidden, even if the products can be purchased and/or legally installed.
  - a. Asbestos
  - b. PCB
  - c. Lead Solder
  - d. Lead Paint

1.13 EQUIPMENT DELIVERY:

- A. Any Contractor receiving equipment or materials that are to be installed under his Scope of Work shall provide personnel and equipment to unload these materials at the time they arrive on site or make provisions for receiving and unloading the shipment.
- B. Any shipments arriving on site without proper personnel present to receive and unload the shipment will be instructed to return to the shipping terminal. The Contractor shall be responsible for all additional shipping charges.

1.14 ACCIDENT PREVENTION:

- A. Each Contractor shall have an approved written Accident Prevention Program and shall provide it when required by the Engineer.
- B. The Contractor shall hold weekly meetings with all subcontractors to monitor compliance with all safety regulations. These regulations shall be provision of the current editions of the State and Federal laws, including but not limited to, the latest amendments of the following: Williams-Steagler Occupational Safety and Health Act of 1970, Public Law 91-956, Part 1910 - Occupational Safety & Health Standards, Chapter 17 of Title 29, Code of Federal Regulations, Part 1926 - Safety & Health Code and Federal and State of South Carolina Regulations.

1.15 BARRICADES:

- A. The Contractor shall provide all labor and materials necessary to conduct work and protect personnel in accordance with OSHA standards.
- B. The Contractor shall furnish, install, and maintain all necessary temporary barricades at the building floor perimeters and openings and to separate the areas of construction from the building occupants at all times.

1.16 PERSONAL PROPERTY:

- A. Contractor will be held liable for all damage to personal and real property as a result of their negligence to provide protective measures.

1.17 GUARANTEE OF WORK:

- A. The Contractor shall procure and furnish to the Owner all guarantees that are called for by the specifications or that are promised by a manufacturer of an item in his published catalog or literature.
- B. Except as otherwise specified, all work shall be guaranteed by the Contractor against defects resulting from the use of inferior materials, equipment or workmanship for one year from the date of substantial completion.
- C. If, within any guarantee period, repairs or changes are required in connection with guaranteed work which, in the opinion of the Engineer, is rendered necessary as the result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the Contract, the Contractor shall promptly:
  - 1. Correct all defects and place in satisfactory condition all guaranteed work.
  - 2. Repair all damage to the building, site, equipment, or other components which, in the opinion of the Engineer, is the result of the use of materials, equipment, or workmanship which are inferior, defective or not in accordance with the terms of the Contract.
- D. Should the contractor disturb any work guaranteed under another Contract, they shall restore such disturbed work to a condition satisfactory to the Engineer and guarantee such restored work to the same extent as it was guaranteed under such other contract.
- E. If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee, the Owner may have the defects corrected and the Contractor and his surety shall be liable for all expense incurred.
- F. There will be one final inspection of project by the Engineer and Contractors between the 11th and 12th month following final acceptance of the building by the Owner. Inspection will be with Owner. Any and all items found will fall in the years' warranty.



1.18 TESTS:

- A. Any specified laboratory tests of material and finished articles to be incorporated in the work shall be made by bureaus, laboratories, or agencies approved by the Engineer and the reports of such tests shall be submitted to the Engineer. The cost of the testing shall be paid for by the Contractor, unless otherwise specified.
- B. The Contractor shall furnish all sample materials required for these tests and shall deliver same without charge to the testing laboratory or other designated agency when and where directed by them.

1.19 TRANSMITTAL OF DOCUMENTS:

- A. Unless stated otherwise, all information shall flow from subcontractors to prime contractor to Engineer and conversely. Reference to a subcontractor submitting to the Engineer in these specifications is not intended to bypass this routing.

1.20 WORK STATED IN OTHER DIVISIONS OF WORK:

- A. The specifications in each Division are intended to compliment one another. In case of conflict, the most stringent requirement shall apply.

END OF SECTION 01 1000

## SECTION 01 1010 - SPECIAL CONDITIONS

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED:

- A. The work under this contract includes the furnishing of all labor, material, plant and all items and services of every nature whether particularly mentioned or not that is required to complete the replacement of the existing chiller with a new, owner purchased, air cooled chiller.

#### 1.2 RELATED DOCUMENTS:

- A. Attention is directed to Division 1, General Requirements and Instructions to Bidders which are binding in their entirety on this portion of the work and in particular to paragraphs concerning materials, workmanship and substitutions.

#### 1.3 OWNER PURCHASED CHILLER:

- A. The Owner has purchased an air cooled chiller for this project. See Appendix for detailed chiller information.
- B. The chiller manufacturer is responsible for the chiller startup. The startup date shall be coordinated by the contractor with the chiller manufacturer.
- C. The anticipated delivery date of the new air cooled chiller is the first week of June. The contractor shall check with the Owner periodically to verify delivery dates.
- D. The existing chilled water system shall remain in operation until the contractor is ready to replace the existing chiller. Once the existing chilled water system is disabled, the contractor has ten (10) calendar days to have the new chiller and chilled water system operational.
- E. The contractor may perform all work not impacting the chilled water system operation prior to the installation of the new chiller. The first day the chilled water system can be taken out of operation is June 6, 2022.

#### 1.4 SUBSTANTIAL COMPLETION:

- A. Project shall be substantially complete within sixty (60) calendar days of the Notice to Proceed.
- B. The contractor shall provide the Engineer notice requesting a Substantial Completion inspection a minimum of ten (10) business days prior to the requested date.

1.5 FINAL COMPLETION:

- A. The contractor shall complete all punchlist items within thirty (30) days of substantial completion.
- B. Any items the contractor does not agree is the responsibility of the contractor shall be identified in writing by the contractor. These items shall be submitted to the A/E within five (5) business day of receipt of the contractor being notified of the item.
- C. Should the contractor fail to complete the punchlist items, the Owner may deduct the following from the contractor's contract amount:
  - 1. Reasonable cost to have work completed by another party.
  - 2. Reasonable cost to have the A/E provide additional review of work.
  - 3. Any other reasonable costs incurred by the Owner as the result of work not being completed.

1.6 OSHA STANDARDS:

- A. OSHA Construction Standards shall be applicable to all construction operations.

1.7 SCHEDULE OF VALUES:

- A. Schedule of values shall include a reasonable breakdown of labor and material for the major categories of work for each trade.

1.8 RETAINAGE:

- A. Retainage shall be withheld at 5% of the total project contract value.

1.9 FINAL PAYMENT:

- A. Contractor shall furnish to the Engineer the following prior to approval of final certificate of payment.
  - 1. Submittal of punch list with each item initialed and date completed.
  - 2. Additional information as identified in all sections of these specifications and contract drawings.

1.10 CONTRACT DRAWINGS:

- A. Drawings are schematic and are based upon existing documents and engineers' field inspections. Contractor shall field verify locations of all equipment, panels, controls,

accessories, wall sections, grades and floor elevations prior to ordering any material or equipment.

1.11 WORK SCHEDULE:

- A. Work may be performed on all days during normal daylight working hours.
- B. Work outside these hours must be approved in writing by the Owner at least three (3) days prior to the work being performed.
- C. Depending upon the nature of the work, utility tie-ins, shutdowns, emergency work, and other work may be required to be done during non-regularly scheduled construction hours.

1.12 SALVAGED MATERIAL:

- A. After removing the existing chiller, the contractor shall allow the Owner ample time to remove:
  - 1. Refrigerant from the chiller
  - 2. Other parts including motors, compressors, etc.

1.13 STORAGE LAYDOWN AREAS:

- A. There is limited storage and laydown area available on site. These areas which are available will be coordinated with the Engineer and Owner.

1.14 PROJECT RESTRICTIONS AND REQUIREMENTS:

- A. No tobacco products permitted on site.
- B. No eating or drinking within the building.
- C. All contractors shall have identification badges worn at all times or shall wear a shirt bearing the contracting company's name and/or logo.

1.15 SAFETY:

- A. If the contractor observes any conditions that they cannot work safely around, the Owner or Engineer should be notified prior to working in that area.

END OF SECTION 01 1010

## SECTION 01 3115 - GENERAL CLEANING

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

- A. Furnish all labor, materials, tools, and equipment and perform all operations to maintain the buildings and site in a standard of cleanliness as described in this section.

#### 1.2 QUALITY ASSURANCE:

- A. In addition to the standards described in this Section, comply with pertinent requirements of agencies having jurisdiction.

### PART 2 - PRODUCTS

#### 2.1 CLEANING MATERIALS AND EQUIPMENT:

- A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

#### 2.2 OTHER MATERIALS:

- A. Provide other materials, not specifically described, but required for a completed and proper cleaning, as selected by the Contractor subject to the approval of the A/E.

### PART 3 - EXECUTION

#### 3.1 GENERAL:

- A. If the contractor fails to maintain the building and site in a clean condition, the Owner, after written notification, will have the cleaning work performed by other forces with the cost incurred by the contractor.

#### 3.2 PROGRESS CLEANING:

- A. General:
  - 1. Retain stored items in an orderly arrangement allowing maximum site and building access, not impeding traffic or drainage, and providing required



protection of materials. At no time shall any emergency exit or fire egress be restricted.

2. Do not allow accumulation of scrap, debris, and waste material.
3. All food, food bags and containers, beverage containers and any other organic debris shall be collected and disposed of daily.

B. Site:

1. Maintain the site in a neat and orderly condition at all times.
2. Inspect the site and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.

3.3 FINAL CLEANING:

A. General:

1. Cleaning shall be to the level typically provided by skilled cleaners using commercial quality building maintenance equipment and materials.
2. Remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste.
3. Additional requirements may be required elsewhere in these specifications.

B. Site:

1. Clean all debris from the site accumulated as a result of the contractor's work.
2. Broom, pressure wash, or steam clean paved areas marred or blemished as a result of the contractor's work.

END OF SECTION 01 3115

## SECTION 23 0501 - GENERAL HVAC REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

- A. The Heating, Ventilation, and Air Conditioning (HVAC) work shall include, but not be limited to, the following:
  - 1. Piping for HVAC system
  - 2. Pumps for HVAC systems
  - 3. Controls and Instrumentation
  - 4. Balancing of Water Systems

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section.

#### 1.3 DELINEATION OF WORK:

- A. Provide all necessary coordination of information to installers who are performing work to accommodate Division 23 installations.
- B. Where the Division 23 installer is required to install items which they do not purchase, they shall include for such items:
  - 1. The coordination of their delivery.
  - 2. Their unloading from delivery trucks driven in to any designated point on the property line at grade level.
  - 3. Their safe handling and field storage up to the time of permanent placement in the project.
  - 4. The correction of any damage, defacement or corrosion to which they may have been subjected.
  - 5. Their field assembly and internal connection as may be necessary for their proper operation.

- 6. Their mounting in place including the purchase and installation of all dunnage, supporting members, and fastenings necessary to adapt them to architectural and structural conditions.
- 7. Their connection to building systems including the purchase and installation of all terminating fittings necessary to adapt and connect them to the building systems.
- C. Items which are to be installed by the Division 23 installer but not purchased as part of the work of Division 23 shall be carefully examined upon delivery to the project. The Division 23 installer shall provide all work necessary to properly install these items.
- D. If any items have been received in such condition that their installation will require additional work beyond the project scope of the work, the Engineer shall be notified in writing within ten (10) working days of the date of delivery of the items. Any claims beyond 10 days will not be considered by the Engineer.

#### 1.4 QUALITY ASSURANCE:

- A. All equipment and materials required for installation under these specifications shall be new and without blemish or defect. All equipment shall bear labels attesting to Underwriters Laboratories approval where subject to Underwriters Laboratories label service. Where no specific indication as to the type or quality of material or equipment is indicated, a first-class standard article shall be furnished. All manufacturers of equipment and materials pertinent to these items shall have been engaged in the manufacture of said equipment a minimum of three (3) years and, if so directed by the Engineer, be able to furnish proof of their ability to deliver this equipment by submitting affidavits supporting their claim.
- B. Each major component of equipment shall have the manufacturer's name, address, model number and rating on a plate securely affixed in a conspicuous place. The nameplate of a distributing agent will not be acceptable. ASME Code Ratings, UL label, or other data which is die-stamped into the surface of the equipment shall be stamped in a location easily visible. Performance as delineated in schedules and in the specifications shall be interpreted as minimum performance.
- C. Where the specifications do not list a specific model number for a manufacturer, the construction of a product shall be equal to those models specifically listed.
- D. All materials with a manufacturers listed shelf life shall be used at least six months prior to the expiration of the materials' shelf life.

#### 1.5 REQUIREMENTS OF REGULATORY AGENCIES:

- A. Submit all items necessary to obtain all required permits to the appropriate Regulatory Agencies, obtain all required permits, and pay all required fees.

- B. Where Codes and Standards are referenced, they shall be the date stated in these specifications or on the drawings. If none stated, they shall be the latest edition.
- C. All work shall conform to the following Building Codes:
  - 1. International Building Codes
  - 2. National Fire Protection Association
- D. All work shall conform to all federal, state, and local ordinances.
- E. Where applicable, all fixtures, equipment, and materials shall be as approved or listed by the following:
  - 1. Factory Mutual Laboratories (FM)
  - 2. Underwriters Laboratories, Inc. (UL)

#### 1.6 STANDARDS AND PROCEDURES

- A. All work shall meet or exceed the standards and procedures of the following:
  - 1. ANSI: American National Standards Institute
  - 2. ARI: American Refrigeration Institute
  - 3. ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers
  - 4. ASME: American Society of Mechanical Engineers
  - 5. ASTM: American Society of Testing and Materials
  - 6. MSS: Manufacturers Standardization Society
  - 7. NBBPVI: National Board of Boiler and Pressure Vessel Inspectors
  - 8. NEMA: National Electrical Manufacturer's Association
  - 9. OSHA: Occupational Safety & Health Administration
  - 10. IRM: Improved Risk Mutuals

#### 1.7 APPROVAL OF SUBSTITUTIONS:

- A. Requests for written approval to substitute materials or equipment considered by the Contractor as equal to those specified shall be submitted for approval in writing ten (10) calendar days prior to bid opening date to the Engineer.

- B. Approval of the Engineer to use materials or equipment, if granted, will be in the form of a written addendum. Approved substitutions may be used at the Contractor's option. No substitutions will be allowed if substitutions are requested later than ten (10) days prior to bid opening date.

1.8 VERIFICATION OF DIMENSIONS AND LOCATIONS:

- A. The Contractor shall visit the facility and become thoroughly familiar with all details of the work, working conditions, dimensions and clearances.
- B. Notify the Engineer of any discrepancy between actual conditions and conditions indicated on the contract documents that could cause changes, other than minor ones, to the installation of any systems or equipment.

1.9 WORKMANSHIP:

- A. Workmen shall be thoroughly experienced and fully capable of installing the work. Work shall be in accordance with the best standard practice of the trade. Work that is not of good quality will require removal and reinstallation at no additional expense to Owner.
- B. All material and equipment to be installed in accordance with manufacturer's printed recommendations using recommended accessories. Retain a copy on job site and submit others for approval when required.

1.10 GUARANTEES AND WARRANTIES:

- A. General:
  - 1. Furnish to the Engineer a guarantee form, included in these specifications, signed by the Contractor and Owner agreeing to the start and end dates of all systems and equipment under warranty.
  - 2. The contractor is not being asked to provide a warranty for the Owner purchased equipment.
  - 3. All defective materials or inferior workmanship shall be replaced or repaired as directed by the Owner's representative during the guarantee period.
- B. Equipment Warranties:
  - 1. Equipment shall be warranted by the equipment manufacturer. Where labor is included in the warranty, the manufacturer, at their option, may permit the contractor to provide the required repairs on the equipment unless specified otherwise.
  - 2. The equipment manufacturer shall include a written guarantee with the closeout documentation.



C. Duration Period:

1. For work not otherwise specified, the duration shall be one year from substantial completion including all parts, labor, and other charges.
2. The Contractor is responsible for purchasing from the equipment manufacturers any additional warranties to ensure that the equipment is warranted by the manufacturer through the duration period specified.

D. Warranty Repair:

1. Repair shall take place as soon as possible but not later than the following:
  - a. Items not essential for facility operation - 7 days.
  - b. Items that have a small impact on facility operation - 2 days.
  - c. Items that have a significant impact on the facility operation - immediately begin repairs or work necessary to minimize operational impact to Owner.
2. The determination of the impact on the facility is solely that of the Owner and Engineer.
3. Where life safety issues are impacted, the contractor shall take all steps necessary to ensure the facility can continue to function in a safe manner.
4. If repairs cannot be made in the required time period, temporary systems shall be installed until repairs can be completed.
5. All costs associated with warranty work shall be borne by the contractor.

1.11 WELDER REQUIREMENTS:

- A. All welders shall be certified by the Welding Bureau of the Mechanical Contractors Association of America. The welders shall be certified for type of welding procedure applicable to the project.
- B. Welding shall be performed in accordance to the applicable welding procedure specification (WPS). Separate WPS are required for different welding methods and materials as set forth in ASME Boiler and Pressure Vessel Code, Section IX.
- C. Welders, welding test and welding procedures shall comply with the following:
  1. Applicable sections of ASME B31 standard, Code for Pressure Piping
  2. ASME Boiler and Pressure Vessel Codes
  3. Standard D9.1 for arc welded and braze welded duct

D. The different type of welding processes include, but are not limited to:

1. SMAW (Shielded metal arc welding)
2. GMAW (Gas metal arc welding or MIG)
3. GTAW (Gas tungsten arc welding or TIG/Heliarc)

E. Submit welder qualifications to Engineer.

#### 1.12 EXISTING FACILITIES:

- A. The location of pipe, equipment, and appurtenances for existing facilities are shown on plans to indicate the extent of work required. Exact condition shall be field verified by the contractor.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

##### 3.1 PRIOR CONDITIONS:

- A. Prior to the installation of any equipment or system component, the Contractor shall review any prior work that has been completed to accommodate the equipment or system component to be installed.
- B. If the prior work does not make a proper installation of any equipment or system component possible, notify the Engineer prior to installation of any equipment or system component.

##### 3.2 INSTALLATION:

- A. Install all equipment and appurtenances in strict accordance with the manufacturer's recommendations and the manufacturer's shop drawings.
- B. If any equipment cannot be installed in accordance with Codes, contract documents, manufacturer's recommendations and accepted practices, notify the Engineer in writing prior to installation of equipment.
- C. If any system component cannot be installed in accordance with Codes, contract documents and accepted practices, notify the Engineer in writing prior to installation of the system component.

3.3 PROTECTION OF SYSTEMS AND EQUIPMENT:

- A. Protect all materials and equipment from damage during storage at the Site and throughout the construction period. In the event of damage prior to final inspections, repair or replace damaged items as determined by the Engineer, at no cost to the Owner.
- B. Store equipment on elevated supports and cover them on all sides with securely fastened waterproof coverings. All equipment openings shall be securely sealed.
- C. Piping shall be protected by storing it on elevated supports and capping the ends.
- D. During construction, all open ends of pipe, etc. which could collect construction debris shall be properly capped.

3.4 CLEANING OF SYSTEMS AND EQUIPMENT:

- A. All equipment and systems shall be cleaned of all extraneous materials to leave equipment and system finish in a new condition.
- B. Where equipment and systems cannot be properly cleaned, take all measures necessary to replace or repair equipment and systems to bring back to a "like new" condition. All costs shall be borne by the Contractor.
- C. All extraneous materials shall be removed on the site on a regular basis to provide access to all work as well as a safe working environment.

END OF SECTION 23 0501

## SECTION 23 0502 - COMMON HVAC MATERIALS

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools, and equipment and perform all operations in connection with the installation of the mechanical systems where shown on the drawings and specified hereinafter.

##### B. Description:

1. Rooftop curbs shall include all supports for rooftop equipment, pipe, duct, air handling equipment and accessories.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section.

#### 1.3 QUALITY ASSURANCE:

- A. All work shall meet or exceed the standards and procedures (latest edition) of the following:
  1. AISC Steel Handbook
- B. All work shall be applicable by mechanics normally employed in the trade. All work shall be installed in accordance with the manufacturer's recommendations.

### PART 2 - PRODUCTS

#### 2.1 FASTENERS, ANCHORS, AND ACCESSORIES:

- A. Unless indicated otherwise, all fasteners, anchors, and accessories shall be metallic and manufactured in the United States.
- B. Materials provided shall be considered industry standard for commercial or industrial use.

- C. All materials shall be installed in accordance with the manufacturer's recommendations for the intent use and application.
- D. Materials installed outdoors shall be stainless steel or hot dipped galvanized.
- E. Unless otherwise specified or required by the manufacturer, bolts shall meet or exceed the following strengths:
  - 1. Proof Load: 74 ksi
  - 2. Yield Strength: 81 ksi
  - 3. Tensile Strength: 105 ksi

2.2 VOC's (ADHESIVES, SEALANTS, AND SEALANT PRIMERS):

- A. All adhesives, sealants, and sealant primers shall meet the latest requirements of LEED or Green Globes or the following, whichever has the lower values:
  - 1. Substrate Applications:
    - a. Metal to Metal - 30 g/L
  - 2. Specialty Applications:
    - a. PVC welding – 510 g/L
    - b. CPVC welding – 450 g/L
    - c. ABJ welding – 325 g/L
    - d. Plastic cement welding – 250 g/L
    - e. Adhesive primer for plastic – 550 g/L
    - f. Sheet applied rubber lining – 850 G/L
    - g. Contact adhesive – 80 g/L
  - 3. Insulation:
    - a. Duct - 50 g/L
    - b. Piping - 50 g/L
- B. The VOC limits are g/L less water.
- C. Adhesives, sealants, and sealant primers shall comply with the South Coast Air Quality Management District (SCAQMD) Rule #1168.



PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION:

- A. Repair all insulation damaged during installation of equipment.

END OF SECTION 23 0502

## SECTION 23 0510 - DOCUMENTATION AND CLOSEOUT

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

- A. Furnish all labor, materials, tools and equipment and perform all operations in connection with the project documentation and closeout.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION

#### 3.1 OWNER TRAINING:

- A. The contractor shall schedule the training on equipment and systems at least 21 days before training is to take place. The contractor shall provide multiple dates and times for the training to allow the Owner to coordinate the schedules of their staff to be trained.
- B. The contractor shall provide all training aids, manuals, etc. for the Owner's staff at the training classes. These are in addition to whatever is required for the Operations and Maintenance manuals. The contractor shall coordinate the number required with the Owner but shall include a maximum of 8 sets for the training class.
- C. The person providing the training shall be thoroughly knowledgeable in the subject matter and shall be certified by the equipment or system manufacturer.

#### 3.2 OPERATING AND MAINTENANCE MANUAL:

- A. Compile and bind three (3) sets of all manufacturer's instructions and descriptive literature on all items of equipment furnished under this work. Additionally, provide this information on a CD in PDF format.
- B. Binder shall be hard cover, three-ring notebook, embossed with the name of the project, 11" x 8-1/2" with heavy duty rings. Maximum binder size shall be 2-1/2". Use multiple binders as necessary.

- C. The spine of the binder shall be titled "HVAC Operating and Maintenance Manual, Volume No. X," with the name of the project and the date under the title.
- D. The Operating and Maintenance Manual shall include the following:
  - 1. Cover sheet in each binder listing the engineer and all contractors. List addresses and contact information.
  - 2. List name, address and phone number of organization responsible for warranty work, if other than Contractor, and the specific work for which he is responsible.
  - 3. List name, address and phone number of the nearest sales and the nearest service organization for each product.
  - 4. Schedules of all equipment including identification tag numbers shown on plans cross referenced to field applied identification tag numbers.
  - 5. Performance Curves: For pumps, balance valves, and similar equipment at the operating conditions.
  - 6. Lubrication Schedule: Indicating type and frequency of lubrication required.
  - 7. List of Spare Parts: Recommended for normal service requirements. Each piece of equipment shall have this list clearly marked or attached to this submittal.
  - 8. Parts List: Identifying the various parts of the equipment for repair and replacement purposes.
  - 9. Instruction Books: May be standard booklets but shall be clearly marked to indicate applicable equipment and characteristics.
  - 10. Wiring Diagrams: Generalized diagrams are not acceptable, submittal shall be specifically prepared for this Project.
  - 11. Automatic Controls: Diagrams and functional descriptions.
  - 12. All start-up reports for all equipment.
  - 13. Test and balance report.
- E. The following diagrams, schematics, and lists shall be provided:
  - 1. Automatic control diagrams
  - 2. Sequences of operation

### 3.3 ENGINEERING FIELD REPORTS AND FINAL INSPECTION REPORTS:

- A. The A/E will review the Contractor's work periodically throughout the project. A report will be submitted to the Contractor.

- B. The reports shall be responded to within ten days of receipt by the Contractor. Each item shall be addressed with comments written on the inspection report if possible. Contractor's response shall address the status of each item and all discrepancies.

3.4 OPERATION AND MAINTENANCE INSTRUCTIONS:

- A. After all final tests and adjustments have been completed, the Owner's Representatives shall be instructed in all details of operation and maintenance for the systems installed.

3.5 CONTROLS OPERATION AND MAINTENANCE INSTRUCTIONS:

- A. Upon completion of Operation and Maintenance instructions, the Owner's representative shall be instructed in all details of operation and maintenance for the controls installed.

PART 4 - STANDARD FORMS

4.1 GENERAL:

- A. All forms shall be completely filled out by the Contractor prior to acceptance of the project by the A/E.

## 4.2 HVAC CLOSEOUT LIST:

<b>HVAC CLOSEOUT DOCUMENT</b> <b>PROJECT:</b> Independence Elementary School Chiller Replacement <b>BGA PROJECT NO.:</b> 22084		
DOCUMENT	DATE REVIEWED	COMMENTS
Preliminary Test and Balance (Waterside)		
Test & Balance (Waterside)		
HVAC O&M Manuals (3 sets plus CD)		
As installed Control Drawings		
HVAC marked-up As-Builts (1 set red lined)		
Equipment Start-Up Reports		
Heat Trace Test at Chiller		
Heat Trace Test of Piping		
Punchlist dated _____		
Punchlist dated _____		
Punchlist dated _____		
Walk-Through with Owner		
NOTE: Not all closeout documents may be listed. See other sections of specifications for additional requirements.		

## HVAC INSTRUCTIONS TO OWNER

[illegible]

23 0510 - 5



**4.4 INSTRUCTIONS TO OWNER:**

<b>OWNER INSTRUCTIONS SIGN-IN SHEET</b>				
<b>PROJECT:</b> Independence Elementary School Chiller Replacement				
<b>BGA PROJECT NO.:</b> 22084				
SYSTEM/EQUIPMENT:	DATE	TIME		LOCATION:
		START	FINISH	

**INSTRUCTORS (PRINT NAME AND SIGN)**

1. \_\_\_\_\_

2. \_\_\_\_\_

**ATTENDEES (PRINT NAME AND SIGN)**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

WRITTEN MATERIALS PROVIDED TO ALL ATTENDEES: \_\_\_\_\_ YES \_\_\_\_\_ NO

INSTRUCTIONS IN CLASSROOM: \_\_\_\_\_ YES \_\_\_\_\_ NO

INSTRUCTIONS IN FIELD: \_\_\_\_\_ YES \_\_\_\_\_ NO

END OF SECTION 23 0510

## SECTION 23 0511 - SUBMITTALS

### PART 1 - GENERAL

#### 1.1 GENERAL:

- A. Refer to Division 1 specification for information and shop drawings and submittals requirements. When conflicts exist, the more stringent requirements shall apply.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section.

#### 1.3 PREPARATION OF SUBMITTALS:

- A. Before preparing submittals, consult all contract drawings and specifications in detail, obtain manufacturer's recommended installation instructions, and have shop drawings prepared based on specific equipment and material intended for installation. Obtain all drawings and submittals from other trades as necessary to coordinate submittals.
- B. Sign all shop drawings indicating conformance with contract documents before submitting to the A/E.

#### 1.4 SUBMITTALS:

- A. General:
  - 1. Submittals are required on all items of equipment and materials.
  - 2. Submittals shall include but not be limited to:
    - a. Complete information pertaining to appurtenances and accessories.
    - b. Information properly marked with service or function identification as related to the project.
    - c. Where the submittal consists of catalog sheets displaying other items which are not applicable, the proper features shall be clearly identified.
    - d. External connections properly marked, as related to the specific use intended, on standard factory assembly and field installation drawings.
    - e. All performance characteristics and physical characteristics.

- f. Wiring and control diagram.
- g. All requirements listed in the specific section of specifications.
- h. Electrical data on all motors greater than one horsepower. Data shall include horsepower unit served, power factor, efficiency and product of P.F. x EFF.

B. Field Fabricated Components:

- 1. When field fabricated components are permitted by the specifications, scaled detailed drawings shall be submitted, clearly showing the materials used, dimensions, sizes, and means of assembly. For example, drawings shall be submitted for pump housings (insulation), support stands, etc.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONTROL SUBMITTAL:

- A. Control submittals shall include the following:
  - 1. All information necessary for a clear representative of the system to be provided.
  - 2. All control components.
  - 3. Graphical representative of all systems to be controlled.
  - 4. I/O summary sheets.
  - 5. Sequence of operation. All devices referenced in the sequence shall be indicated on graphic representation.
  - 6. Wiring diagrams including interface with equipment (terminal strip, contactor, etc.).
- B. All drawing submittals shall be CADD generated drawings.

3.2 SHOP DRAWING SUBMITTAL COVER SHEET:

- A. A separate cover sheet shall be submitted with each product type (i.e., valves can be submitted together, etc.)

### 3.3 SHOP DRAWING SUBMITTAL COVER SHEET

(Provide one page for each group of shop drawings.)

PROJECT NAME: Independence Elementary School, Chiller Replacement

BGA FILE NO. 22084-4-33

PRODUCT: \_\_\_\_\_

BGA SHOP DWG. NO. \_\_\_\_\_

#### NOTE TO CONTRACTOR

1. All shop drawing comments by Buford Goff & Associates shall be complied with or the shop drawings shall be declared rejected.
2. If this form is not completed and signed by the Contractor and items 1 to 8 below are not answered YES or N/A, the shop drawings shall be declared rejected.
3. Dampers, grilles, valves, etc., are reviewed for characteristics but not for size and quantity. It is the Contractor's responsibility to verify sizes and quantity.

#### SHOP DRAWING SUBMITTAL (Contractor to complete this section)

1. Does the submittal comply with the contract documents? ☐ Yes ☐ No  
If no, list all deviations on an attached page.
2. Have the electrical characteristics (i.e., volt/phase/amps, MOP, MCA, and connection location) been reviewed with the electrical schedules and the electrical circuit sizing meet the requirements of that equipment? ☐ Yes ☐ No ☐ N/A
3. Is product an approved manufacturer listed in the specifications or addendum? ☐ Yes ☐ No ☐ N/A
4. Does the product submitted meet the manufacturer's recommended service clearance for the space in which it is to be installed? ☐ Yes ☐ No ☐ N/A
5. Have the control components of the product been reviewed and do they meet with the requirements of the controls contractor? ☐ Yes ☐ No ☐ N/A
6. Have the equipment connections been reviewed (size and locations) and has the Contractor included all provisions to make the required connections? ☐ Yes ☐ No ☐ N/A
7. Has the seismic engineer reviewed and approved the method of connecting seismic restraints to equipment? ☐ Yes ☐ No ☐ N/A
8. Is the equipment within the weight limitations specified, if any? ☐ Yes ☐ No ☐ N/A

#### BGA'S SHOP DRAWING STAMP (Engineer to complete this section)

Checking is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Contractor is responsible for specific compliance with the information given in the Contract Documents; dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades, and the safe and satisfactory performance of his work.

- ☐ Reviewed    ☐ Reviewed as Noted    ☐ Revise and Resubmit    ☐ Revise and Resubmit Items Listed  
☐ See attached for additional comments    ☐ Reject

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ Reviewer: \_\_\_\_\_ Date: \_\_\_\_\_

END OF SECTION 23 0511

SECTION 23 0519 - METERS AND GAUGES FOR HVAC PIPING

PART 1 - GENERAL

1.1 SCOPE OF WORK:

A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of gauges where shown on the drawings and specified hereinafter.

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 2113 - HVAC Piping (General)
  2. Section 23 0900 - Instrumentation and Control for HVAC (General)
  3. Section 23 0904 - Building Automation System

1.3 QUALITY ASSURANCE:

A. Manufacturer:

1. The following thermometer, pressure gauge and accessories manufacturers are acceptable:
  - a. Terice
  - b. Weksler
  - c. Weiss
  - d. MILJOCO
2. The following manifold pressure gauge assembly manufacturers are acceptable:
  - a. Flow Conditioning Corporation
  - b. Approved equal



## PART 2 - PRODUCTS

### 2.1 GENERAL:

- A. Gauges shall be suitable for the environment in which it is to be installed. Gauges installed outside shall be rust-proof and weather-resistant.
- B. All gauges shall be equipped with a 1/4" brass ball valve and shall be removable from hydronic and steam systems without loss of medium.
- C. Gauges installed outside shall be nonfreeze type to 0 degrees F.
- D. Gauges shall have extension to extend a minimum of 1" greater than the thickness of the insulation.

### 2.2 THERMOMETERS:

- A. General:
  - 1. Thermometers shall be non mercury type.
  - 2. Thermometers shall be accurate to within (+) or (-) one of the smallest divisions throughout the entire range.
  - 3. Thermometers shall be located so as to be easily read.
  - 4. Thermometers shall be so selected that normal operating temperature will be in the mid-range of the thermometer. Thermometers shall have a maximum of 2 degrees between graduations and shall have a maximum of 10 degrees between figures.
- B. Thermometers for Fluid Temperature Measurement:
  - 1. Thermometer shall be provided at all thermometer wells.
  - 2. Thermometers shall be rotatable, adjustable stem, angle type complete with sensing element.
  - 3. Case shall be aluminum with baked black enamel finish or molded black nylon glass fiber reinforced. Front shall be plastic. Scale shall be 9" with black numerals on a white background.
  - 4. Sensing element shall be brass or aluminum extension, swivel union, and brass separable socket.
  - 5. Where thermometers are installed in piping to be covered, they shall have an extension neck extending through the covering.

6. Basis of design thermometers shall be:

a. Weiss Type 9 VU

C. Thermometer Wells:

1. Thermometer wells shall be designed to hold an engraved stem thermometer.
2. The wells shall be made of heavy brass and shall be approximately 6 inches long, shall project 2-1/2 inches into the pipe and shall have dust protecting caps and chains.
3. Wells shall be set vertical or at an angle so as to retain oil.

## 2.3 THERMOMETER LOCATIONS:

- A. Locations shown on plans and details.
- B. Chilled water supply and return at chillers.

## 2.4 PRESSURE GAUGES:

- A. Pressure gauges shall be single spring bourdon tube type with wear resisting moving parts and adjustable linkage. Gauge movement shall be suitably mounted in a cast aluminum case, baked black enamel finish, with glass front and plain removable ring. Gauges shall have 4-1/2 inch dials.
- B. Pressure gauges shall be accurate to within (+) or (-) 1%.
- C. Gauge shall be liquid filled.
- D. Range of gauge for each particular point of application shall be selected so that pointer is approximately in midpoint of scale under normal operating conditions.
- E. Where manifold pressure gauge assemblies are specified or indicated on the plans, manifold pressure gauge assemblies shall be provided in lieu of individual gauges.

## 2.5 PRESSURE GAUGE LOCATIONS:

- A. Locations shown on plans and details.
- B. Chilled water supply and return at chillers.
- C. Suction and discharge of pumps.

2.6 MANIFOLD PRESSURE GAUGE ASSEMBLY:

- A. Manifold pressure gauge assemblies shall be provided on indoor equipment not subject to freezing temperatures as follows:
  - 1. Locations shown on plans and details.
  - 2. Pumps.
- B. Assembly shall include manifold valve, pressure gauge, brackets, and all required accessories.
- C. Manifold valve shall be one piece brass construction with spring return push buttons, connection ports, and test port.
- D. Field installed pipe shall be Type K, hard drawn, copper pipe or schedule 40 black steel.
- E. Basis of design pressure gauges shall be:
  - 1. Flow Conditioning Corporation Hydronic Indicator
- F. Basis of design manifold shall be:
  - 1. Flow Conditioning Corporation Trumpet Valve

PART 3 - EXECUTION

3.1 THERMOMETERS AND PRESSURE GAUGES:

- A. Thermometers and pressure gauges shall be installed to be easily read from floor level.

3.2 MANIFOLD PRESSURE GAUGE ASSEMBLY:

- A. Assembly shall be supported from a pipe stanchion securely bolted to the floor or to a unistrut rack.
- B. All gauges shall be mounted at locations which provide protection from damage by maintenance and construction personnel. Gauges shall be mounted and oriented such as to be easily read from a standing position on the floor.
- C. Run pipe in a neat parallel and perpendicular manner.

END OF SECTION 23 0519

SECTION 23 0523.01 - GENERAL DUTY VALVES FOR HVAC PIPING

PART 1 - GENERAL

1.1 SCOPE OF WORK:

A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of valves and appurtenances where shown on the drawings and specified hereinafter.

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 2113 - HVAC Piping (General)

1.3 QUALITY ASSURANCE:

A. Codes and Standards:

1. All valves shall meet or exceed the following federal and ANSI standards (latest edition).
  - ANSI B16.1 Cast iron pipe flanges and flanged fittings (Class 125 and 250)
  - ANSI B16.10 Face-to-face and end-to-end dimensions (ferrous valves)
  - ANSI B 16.34
  - MSS SP-25 Standard markings for valves, fittings, flange s, and unions
  - MSS SP-67 Butterfly valves
  - MSS SP-70 Gray iron valves, Flanged and Threaded Ends
  - MSS SP-71 Gray iron swing check valves, Flanged and Threaded Ends
2. All valve materials shall meet or exceed the following ASTM standards (latest edition):
  - ASTM A-126 Cast iron and cast steel gate, globe, and check valves (body and bonnet)

ASTM B-16.34     Materials standard

3. All work shall meet or exceed the standards and procedures (latest editions) of the following:
  - a. Pressure Vessel Code, Section 1
  - b. API 602 - Material Thickness
  - c. API 607
  - d. API 608
  - e. API 609
- B. All valves furnished under this section shall be new, first quality of approved manufacturer, and shall be tight at the specified test pressure.
- C. Valve manufacturer and pressure rating shall be cast on side of valve body.
- D. Each valve is to be given shell and seat tests by the manufacturer and will carry a permanently affixed indication that tests have been successfully completed.
- E. All pressure casting shall be free of any impregnating materials.
- F. Manufacturers:
  1. The following butterfly valve manufacturers are acceptable:
    - a. Hammond
    - b. Milwaukee
    - c. Nibco
    - d. Apollo
    - e. Bray
  2. The following combination balance valve (calibrated) manufacturers are acceptable:
    - a. Bell and Gossett
    - b. Taco
    - c. Gerand
    - d. Wheatley
    - e. Armstrong

f. Mueller

## PART 2 - PRODUCTS

### 2.1 VALVES:

#### A. General:

1. Leave packing for all valves in good condition, replacing as necessary at completion of work. Packing shall be of approved non-asbestos material suitable for required service.
2. The pressure-temperature rating of valves shall be not less than the design criteria applicable to all components of the system.
3. Where composition discs are used, the disc shall be suitable for the intended service. Manufacturer shall provide recommended disc for long life.
4. All cast iron bodies shall be high strength construction.
5. All valves used only for shut-off shall be the size of the line in which it is installed unless noted otherwise.
6. All valves used for flow control or balancing shall be sized by the manufacturer to provide the best selection of valves for the use intended without exceeding any specified maximum pressure drop.
7. Maximum pressure drop for balancing devices at required flow shall be 15 feet unless noted otherwise.
8. Valves installed in insulated systems shall have valve stems extended a minimum of 1/2" greater than the thickness of the insulation.
9. All measuring ports shall extend a minimum of 1/2" greater than the thickness of the insulation.

### 2.2 BUTTERFLY VALVES:

#### A. General:

1. Butterfly valve liners and discs shall be suitable for the intended service.
2. Seats shall be field replaceable.
3. Operators for valves 2½ inches through 6 inches shall be trigger lever handle operator with 10 degrees balancing notches on throttling plate, position lock, and memory stop.



4. All butterfly valves shall be suitable for installation with pipe flanges conforming to ANSI standards.
5. Valves shall be capable of bubbletight shutoff service at 200 PSIG pressure differential for 2" thru 12" valves.
6. Butterfly valves shall be suitable for dead end service, at full pressure, without downstream blank flange.
7. Valves shall be lug type only.

B. Butterfly valves for chilled water:

1. Valves shall be iron body, stainless steel stem, aluminum bronze disc, EPDM (EPT) seats and seals and rated from 20 degrees F. to 240 Degrees F. (continuous service) with CWP of 200 psi.
  - a. Kitz 6122E
  - b. Milwaukee ML 123
  - c. Nibco LD 2000 or LC 2000

2.3 COMBINATION BALANCE VALVES (Calibrated):

A. General:

1. Valves shall perform the functions of a non-slam check valve, a balance valve (calibrated) and a positive shut-off valve.
2. The valve shall have calibrated nameplate, memory stop indicator and differential read-out ports with check valves.
3. All combination balance valves shall be designed for repacking under pressure.

B. Combination Balance Valves (calibrated) for Pump Discharge Piping:

1. Valves shall be cast iron body, bronze or brass disc and set, stainless steel stem and spring, flange type angle or straight valve, rated for 175 psi at 250 degrees F.
  - a. B&G Triple Duty Valve
  - b. TACO Plus One
  - c. Mueller Control Chek Valve

2.4 VALVES AT GAUGES:

- A. A valve shall be provided at each gauge connected to the pipe system.

- B. A stainless steel ball valve shall be provided.

### PART 3 - EXECUTION

#### 3.1 VALVES (INSTALLATION):

- A. All valves in horizontal lines shall be installed with the stem upright and within 15 degrees of vertical where possible.
- B. Butterfly valves shall be installed with stems in the horizontal position where possible.
- C. Provide reducers for all valves smaller than line size.

END OF SECTION 23 0523.01

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SECTION 23 0529 - HANGERS AND SUPPORTS FOR HVAC PIPING

PART 1 - GENERAL

1.1 SCOPE OF WORK:

A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of supports and anchors on all piping and appurtenances where shown on the drawings and specified hereinafter.

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 0548 – Sound, Vibration, and Seismic Control for HVAC
  2. Section 23 0719 - HVAC Piping Insulation
  3. Section 23 2113 - HVAC Piping (General)

1.3 QUALITY ASSURANCE:

- A. Products not otherwise specified in these documents shall be furnished by the listed manufacturers and installed in accordance with the manufacturers recommendation.
- B. Products used shall be consistent with industry practice for use in commercial or industrial installation.
- C. Codes and Standards:
  1. All work shall meet or exceed the standards and procedures of the following as referenced (latest editions):
    - a. ANSI B31.3 - Pressure Piping
    - b. Factory Mutual
    - c. International Building Codes
    - d. Manufacturer's Standardization Society Documents, MSS-SP-58, MSS-SP-69

- e. Pipe Fabrication Institute, Standard ES-26
  - f. AISC Specification for the Design, Fabrication, and Erection of Structural Steel Buildings
- D. Manufacturers:
  - 1. The following pipe hanger and support manufacturers are acceptable:
    - a. B-Line
    - b. Pipe Hangers and Devices Mfg. Inc.
    - c. Anvil International
  - 2. The following surface mounted pipe support manufacturers are acceptable:
    - a. Mifab
    - b. MIRO
    - c. Approved Equal
  - 3. The following channel support manufacturers are acceptable:
    - a. Erico Eristrut
    - b. Unistrut
    - c. Approved Equal

## PART 2 - PRODUCTS

### 2.1 GENERAL:

- A. It shall be the Contractor's responsibility to provide an adequate pipe support system in accordance with recognized engineering practices using, where possible, standard, commercially available hangers, support, guides, anchors and accessories.
- B. Model numbers are indicated for products not exposed to ambient conditions. The products exposed to ambient conditions shall be a similar product but with the material or finish specified for products exposed to ambient conditions.
- C. Materials shall be selected to prevent electrolysis and minimize corrosion for the environment in which the product is to be installed.
- D. Hanger shall be sized for insulation to run through hanger, support, clamp, or guide.

2.2 SAFETY FACTOR:

- A. All attachments, rods, and accessories selected based on weight load shall be selected for a two times safety factor minimum.

2.3 PRODUCTS EXPOSED TO AMBIENT CONDITIONS:

- A. Materials:
  - 1. The material for all accessories including, but not limited to, rods, bolts, fasteners, inserts, saddles, supports, anchors, clamps, auxiliary steel, and accessories shall be stainless steel or hot dipped galvanized unless specifically noted otherwise.
- B. Supports:
  - 1. Roller supports shall be zinc electroplate finish.

2.4 PIPE HANGERS, SUPPORTS, AND ACCESSORIES - GENERAL (INDOOR):

- A. Hangers:
  - 1. Clevis hangers for insulated pipe shall be carbon steel or carbon steel with zinc electroplate finish.
- B. Shields:
  - 1. Shields shall be carbon steel with zinc electroplate finish.

2.5 PIPE HANGERS - INSULATED PIPING:

- A. Basis of design manufacturer for pipe 2½" and larger - Clevis hanger with shield:
  - 1. Anvil Model No. 260 with 167 shield

2.6 HANGER RODS:

- A. Threaded rods, if not indicated otherwise, shall be carbon steel with zinc electroplate finish.
- B. Rods shall be selected at 2x safety factor.
- C. Rod capacity based upon ASTM A107 at 650 degrees F is as follows:

<u>Rod Dia.</u>	<u>Max. Load</u>	<u>Max. Load (@ 2 x SF)</u>
3/8	610	305
1/2	1130	565

2.7 AUXILIARY SUPPORTS, FASTENERS, AND ACCESSORIES:

- A. Provide all auxiliary supports, anchors, and fasteners necessary for the installation of piping, equipment, and accessories.
- B. Supports shall include angles, channels, flat steel, rods, bolts and appurtenances.
- C. Special supports shall be provided where standard hanger, supports, or attachments cannot be used. This includes, but is not limited to, use of trapeze supports, suspending supports from other supports (where acceptable to manufacturers, etc.).

2.8 CHANNEL SUPPORTS:

- A. General:
  - 1. Channel supports shall be utilized wherever practical and whenever a channel support provides a cleaner installation than individual attachments to the structure.
- B. Construction:
  - 1. Channel supports shall be 12 gauge minimum and dimensions as necessary to meet project conditions.
  - 2. Channels exposed to ambient conditions shall be hot dipped galvanized after fabrication, aluminum, stainless steel, PVC coated, or epoxy coated.
  - 3. Channels shall have holes, slots, knockouts, etc. as required by the Contractor.
- C. Clamps and Accessories:
  - 1. Clamps, accessories, fasteners, etc. shall generally be the same materials as the channel supports.

2.9 SURFACE MOUNTED PIPE SUPPORTS:

- A. General:
  - 1. Support shall be designed to support outdoor piping.
  - 2. The support height shall be adjustable.
  - 3. The support shall be suitable for a minimum load of 150 lbs.
  - 4. Spacing of supports shall be no greater than specified for piping supports or as indicated on plans, whichever is less.



B. Polycarbonate Support:

1. Support shall be constructed of UV resistant polycarbonate.
2. Attached to the base are two threaded rods with self-lubricating rollers with a pipe guide.
3. A UV resistant rubber support pad shall be provided.

C. Accessories:

1. Provide all accessories and hardware to support piping.
2. All hardware and metal components shall be HDG or stainless steel unless noted otherwise.

D. Basis of design polycarbonate support manufacturers shall be:

1. MIRO

2.10 PIPE SHIELDS:

- A. Provide at all supports and hangers on insulated piping systems.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Contractor shall bear all responsibility for materials and workmanship as described in this section, and shall make sure that all hangers and supports are properly and permanently connected to building structure.
- B. All pipe supports shall be designed to avoid interferences with other piping, hangers, electrical conduits and supports, building structures and equipment.
- C. Provide hanger rod nuts on both sides of clevis and trapeze hangers.

3.2 SUBMITTAL:

- A. Manufacturer shall be responsible for reviewing all plans, specifications, and existing conditions to determine the types, quantities, and accessories required to provide a complete system of pipe support.
- B. Submit shop drawings for each product to be used and indicate where the product is to be installed.

3.3 AUXILIARY SUPPORTS, ANCHORS, AND FASTENERS:

- A. Supports attaching to steel structure shall be by bolting or clamping without penetrating structural member. Welding is not permitted without written permission.
- B. All fasteners shall be provided which resist loosening from vibration.

END OF SECTION 23 0529

## SECTION 23 0533 - HEAT TRACING FOR HVAC PIPING

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

- A. Furnish all labor, equipment, tools, materials, and perform all operations in connection with the installation of a complete pipe heat tracing on all outdoor chilled water piping and appurtenances where shown on the drawings and specified hereinafter.
- B. Description:
  - 1. Heat tracing, heat tape and similar references shall include heating cable, controls and accessories for protection of pipes from freezing.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. All sections of Division 23 Specifications apply to this section.

#### 1.3 QUALITY ASSURANCE:

- A. Codes and Standards:
  - 1. All work furnished and installed shall comply with all local codes and ordinances and shall meet or exceed the standards and procedures (latest editions) of the following:
    - a. National Electric Code (NEC)
- B. Manufacturers:
  - 1. The following hydronic pipe heat tracing manufacturers are acceptable:
    - a. Raychem
    - b. Chromalox
    - c. Approved Equal

## PART 2 - PRODUCTS

### 2.1 HEAT TRACING CABLE:

#### A. General:

1. The cable shall consist of two parallel copper conductors with a self-limiting conductive core material between, and with inner and outer insulation jackets. Current shall pass thru the resistive core, between the parallel conductors, forming a continuous heating circuit.
2. The cable core material shall be capable of controlling its own heat output in response to temperature changes. As the temperature drops, it shall increase its output. As the temperature rises, it shall compensate by decreasing its output at every point along the strip.

#### B. Provide freeze protection on the outdoor chilled water system.

### 2.2 ELECTRONIC CONTROLLER:

#### A. Controller shall be in a NEMA 4X (stainless steel) enclosure.

#### B. A digital display shall show:

1. Measured temperature
2. Setpoint temperature
3. Alarm conditions (sensor failure, temperature alarm, ground fault alarm)

#### C. Displayed conditions shall be monitored remotely by the building automation system.

#### D. Switching current shall be a minimum of 30A.

#### E. Ground fault protections shall be 30 -mA.

### 2.3 BASIS OF DESIGN MANUFACTURER SHALL BE:

#### A. Raychem ECW-GF

## PART 3 - EXECUTION

### 3.1 HEATING TRACING CABLE INSTALLATION:

#### A. Heat tracing cable shall be field cut to exact lengths required.

- B. The Contractor shall make final connection.

3.2 THERMOSTAT INSTALLATION:

- A. The sensor shall be installed surface mounted where indicated on the drawings.
- B. The sensor bulb shall be taped to the freeze protected piping, under the insulation, 180 degrees away from the heat tracing cable. The thermostat bulb shall be located 3 feet from any pipe fitting or end. Capillary tube shall be protected from damage and installed with no kinks or sharp bends (less than 1/2" radius).

3.3 THERMOSTAT SETTING:

- A. Thermostat shall de-energize cable upon a rise above thermostat set point.

3.4 COORDINATION:

- A. Exact location of heat tracing cable and power requirements shall be coordinated with the electrical installer.

3.5 FIELD TESTING:

- A. After installation and thermostat has begun to cycle, the surface temperature of the pipe under the insulation shall be checked with surface pyrometer.
- B. Cable continuity shall be verified with an ohm meter.
- C. Submit report to Engineer.

3.6 SUBMITTALS:

- A. Submit manufacturer's calculations including length of pipe, temperatures used, cable selected and electrical requirements.

END OF SECTION 23 0533

SECTION 23 0548 – SOUND, VIBRATION, AND SEISMIC CONTROL FOR HVAC

PART 1 - GENERAL

1.1 SCOPE OF WORK:

A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of mechanical sound, vibration, and seismic control required on all mechanical equipment, systems, and appurtenances where shown on the drawings and specified hereinafter.

- B. All foundations and supports of Division 23 equipment shall be furnished and installed by Division 23 installer except where specifically noted otherwise.

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section.

1.3 QUALITY ASSURANCE:

A. Codes and Standards:

1. All seismic equipment and design shall comply with all local codes and ordinances and meet or exceed the standards and procedures (latest editions) of the following:
  - a. International Building Codes
  - b. SMACNA Seismic Restraint Manual
  - c. ASHRAE

- B. Mechanical sound, vibration and seismic control equipment shall be sized and provided by manufacturer only.

C. Manufacturer:

1. The following sound, vibration, and seismic control (except flexible pipe connectors) manufacturers are acceptable:
  - a. Mason Industries

- b. Korfund Dynamics Company
  - c. Vibration Mountings and Controls, Inc.
  - d. Peabody
  - e. Amber Booth
  - f. Vibration Eliminator, Inc.
  - g. Vibro-Acoustics Corporation
2. The following flexible pipe connector manufacturers are acceptable:
- a. Mason Industries
  - b. Metraflex
  - c. Vibro-Acoustics Corporation

## PART 2 - PRODUCTS

### 2.1 GENERAL:

- A. Components not exposed to ambient:
  - 1. Steel components shall be powder coated. All nuts, bolts, and washers shall be zinc-electroplated. Structural steel bases shall be thoroughly cleaned of welding slag and primed with zinc-chromate or metal etching primer.
- B. Components exposed to ambient:
  - 1. All components shall be PVC coated steel, hot-dip galvanized, stainless steel, or heresite coated.

### 2.2 VIBRATION ISOLATORS:

- A. General:
  - 1. Mounts shall have holes in baseplate for anchoring to structure.
- B. Specification type "L" (Pipe Connectors):
  - 1. Flexible stainless steel hose shall have stainless steel braid and carbon steel fittings. Sizes 3" and larger shall be flanged. Diameter and minimum length (in inches) shall be as follows:



FLANGED

3 x 14	10 x 26
4 x 15	12 x 28
5 x 19	14 x 30
6 x 20	16 x 32
8 x 22	

2. Hoses shall be installed on the equipment side of the shut-off valves horizontally and parallel to the equipment shafts wherever possible.
3. Basis of design manufacturer shall be:
  - a. Mason Industries, Inc. type BSS.

C. Specification type "P" (Pump Connector):

1. Flexible stainless steel connector shall have stainless steel braid and carbon steel flanges.
2. Diameter, minimum length, and working pressure (based upon 70 degrees F and a 4:1 safety factor) shall be as follows:

2" x 9" and 500 PSI  
2½" x 9" and 385 PSI  
3" x 9" and 285 PSI  
4" x 9" and 230 PSI  
5" x 11" and 190 PSI  
6" x 11" and 165 PSI
3. Connector may be a reducing type.
4. Basis of design manufacturer shall be:
  - a. Mason Industries, Inc.

D. Specification type "Q" (Waffle Pads):

1. One layer of 3/4" thick neoprene pad consisting of 2" square modules.
2. Pads shall have a minimum load deflection of 10%.
3. Pads up to 36 sq. inches shall have a 1/4" thick bearing plate. Larger pads shall have a 3/8" thick bearing plate.
4. Bearing plates shall be stainless steel and shall have an appropriately sized hole for mounting.

5. Basis of design manufacturer shall be:
  - a. Mason Industries, Inc. Model Super WMH.

## 2.3 VIBRATION ISOLATOR SCHEDULE:

- A. Base Mounted Pumps:
  1. Type P connector
- B. Chillers (Air Cooled):
  1. Type Q waffle pad
  2. Type L connectors, all connections

## 2.4 WIND LOAD DESIGN:

- A. General:
  1. Specifications and plans shall indicate minimum requirements and general intent. The actual requirements shall be determined by the contractor's structural engineer but those requirements shall not be less than indicated on the plans and in these specifications.
  2. The structural engineer shall be a professional engineer registered in the state in which the facility is to be constructed. The structural engineer shall be responsible for:
    - a. Submittals (drawings and calculations)
  3. All equipment located outdoors shall be designed to meet or exceed the requirements of the current IBC wind load requirements.
  4. Calculations shall be based on the ASCE determined design pressure and exposure class.
- B. All outdoor equipment located on equipment pads shall be anchored to the equipment pads to withstand the IBC wind load requirements.
- C. Where additional bracing or tie downs are required, they shall be provided at no additional cost to the Owner.

## 2.5 ANCHORAGE TO BUILDING STRUCTURE:

- A. General:
  1. Anchorage to the building structure shall meet the requirements of the latest edition of:

- a. International Building Code (Chapter 19)
    - b. ASCE Standard 7 (Chapter 13)
    - c. American Concrete Institute (ACI) 318
  2. Requirements of this section of specifications are minimum requirements. When other requirements are indicated, the greater requirement shall be met or exceeded.
- B. Threaded Rod Supports:
1. Rod supports shall be designed to resist bending moments.
  2. Threaded rod supporting duct, piping, equipment, or other components shall connect to structure by use of a swivel, eyebolt, vibration isolation hanger or other connection

### PART 3 - EXECUTION

#### 3.1 GENERAL:

- A. All field installed components shall be neatly installed and be of materials and/or finish suitable for the installation.

#### 3.2 SUBMITTALS (WIND LOAD):

- A. Wind Restraints:
1. Submit drawings and calculations showing wind loading, location of anchors, ties and bracing, and types and sizes of restraints.
  2. Submit calculations for shear, pull-up, primary overturning, and secondary overturning.
  3. Submit drawings indicating auxiliary supports and method of attachment.
  4. Submit drawings indicating size and type of attachment (i.e., welding, bolting, etc.) to:
    - a. Attachment of equipment to housekeeping pads or slab.
- B. Calculations shall be submitted and signed by a licensed professional engineer in the state where the project is located.

END OF SECTION 23 0548

## SECTION 23 0592 - SYSTEM START-UP

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

- A. General:
  - 1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the start-up of all building mechanical systems where shown on the drawings and specified hereinafter.
- B. Description:
  - 1. These systems shall include:
    - a. Hydronic systems

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  - 1. Section 23 0593 - Testing, Adjusting, and Balancing for HVAC

#### 1.3 QUALITY ASSURANCE:

- A. Codes and standards:
  - 1. All work shall meet or exceed the standards and procedures of the following (latest edition):
    - a. AABC National Standards
- B. Start-up of equipment shall be by manufacturer's representative unless noted otherwise.
- C. Tests, in addition to those specified herein, required to prove code compliance, to meet insurance requirements, and to verify proper installation by the A/E, owner, or authorities having jurisdiction shall be provided by the Contractor.
- D. All tests, instruments, and procedures shall be in accordance with the AABC National Standards and system test and balance specifications.

## PART 2 - PRODUCTS

### 2.1 GENERAL:

- A. In no case shall a system be started or operated in such a manner that the system or component pressure or temperature ratings, or the pressure or temperature to which a system or component has been tested, be exceeded.

### 2.2 START-UP:

- A. Systems shall be started up by the Contractor except as required in specific portions of the specifications.
- B. The chiller manufacturer will be responsible for the chiller startup.

### 2.3 STARTING THE PIPING SYSTEMS:

- A. Prior to putting any piping system in service, it shall be tested and thoroughly cleaned according to the procedures as specified below and as required by the equipment manufacturer, whichever requirement is more stringent.
- B. Bleed all air from hydronic systems.
- C. Existing Systems:
  - 1. The contractors are responsible to take all precautions necessary to prevent contamination of existing domestic water when connecting new systems to existing water lines.
- D. Cleaning of Hydronic Systems (Non-domestic):
  - 1. Isolate the new piping from the existing system to the extent practical. Flush thoroughly with clean water until the system is cleaned.

### 2.4 SYSTEM START-UP:

- A. General:
  - 1. System shall be started and checked to ensure safe and proper operation.
  - 2. Minimum requirements are listed for each system and are in addition to manufacturer start-up requirements and the requirements stated in the specific sections of the specifications.
  - 3. Temperature control systems installed complete and operable.
  - 4. Proper thermal overload protection in place for electrical equipment.

- B. Hydronic System (Non-domestic):
  - 1. Verify system is completely filled.
  - 2. Verify system is clean.
  - 3. Verify system is free of air and expansion tanks are operating at proper levels.
  - 4. Open all service valves.
  - 5. All strainers shall be provided with clean sleeves having proper perforations.
  - 6. Verify proper balancing devices are in place and correctly located:
    - a. Meters
    - b. Pressure taps
    - c. Thermometer wells
    - d. Balancing valves
  - 7. Verify proper pump rotation.
- C. Vibration Isolation System:
  - 1. Check alignment of flexible connections.

## PART 3- EXECUTION

### 3.1 SUBMITTALS:

- A. Submit to the A/E all test results including a minimum of the following information:
  - 1. System tested
  - 2. Location of test
  - 3. Date, time, and ambient temperature at test startup and completion
  - 4. Persons present for test
  - 5. Duration of test
  - 6. Test equipment
  - 7. Test results
- B. Reports shall be submitted within ten days of test completion.

3.2 ENGINEER REVIEW:

- A. The A/E shall, at his discretion, recheck any or all of the test work. Provide ample number of technicians and test equipment to perform the tests required.
- B. All systems not accepted shall be retested.
- C. Systems shall be retested and rechecked until accepted by all parties.

END OF SECTION 23 0592



SECTION 23 0593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 SCOPE OF WORK:

A. General:

1. Furnish all labor, materials, tools, and equipment and perform all operations in connection with the testing and balancing of all mechanical systems where shown on the drawings and specified hereinafter.

B. Description:

1. Systems shall include all equipment, operators, controls, accessories, and appurtenances.
2. These systems shall include:
  - a. Hydronic systems

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 0592 - System Start-Up

1.3 QUALITY ASSURANCE:

A. Codes and Standards:

1. All work shall meet or exceed the standards and procedures of the following (latest editions):
  - a. AABC National Standards
  - b. NEBB Standards
  - c. NBC Standards
2. Testing and balancing shall be performed by an agency certified by the AABC, NEBB, or the National Balancing Council.

3. All technicians shall have a minimum of three years testing and balancing. Each test and adjustment shall be under the direct supervision of a qualified technician.
4. Testing and balancing shall be performed by one agency.

## PART 2 - PRODUCTS

### 2.1 GENERAL BALANCING PROCEDURES:

- A. All recorded data shall represent a true, actually measured, or observed condition.
- B. Any abnormal conditions in the mechanical systems or conditions which prevent total system balance, as observed by the Test and Balance Agency, shall be reported as soon as possible to the Engineer.
- C. If, for any reason, a system cannot be properly balanced, it shall be reported to the Engineer by the Test and Balance Agency as soon as observed.
- D. The Test and Balance Agency shall leave all system components in proper working order including:
  1. Close access doors.
  2. Close doors to electrical switch boxes.
- E. The Test and Balance Agency shall permanently mark the settings of all valves and other adjustment devices in a manner that will allow the settings to be restored. If a balancing device is provided with a memory stop, it shall be set and locked.
- F. Systems shall be tested in each specified mode of operation. See equipment Sequence of Operation.

### 2.2 INSTRUMENTS:

- A. All Test and Balance work shall be performed using the required instrumentation to obtain proper measurements.
- B. Instruments shall be properly maintained and transported in such a manner as to provide protection against damage due to vibration, impact, moisture or any other condition that may render them inaccurate.
- C. Instruments shall have been calibrated within a period of six months prior to starting the project.
- D. Proof of calibration shall be maintained with the instruments.
- E. Instruments shall be calibrated upon completion of the work when required by the client to prove reliability.

## 2.3 HYDRONIC SYSTEMS:

### A. General Requirements:

1. Hydronic system balance shall not begin until the Test and Balance Agency has verified that start-up procedures have been performed.
2. The Test and Balance Agency shall measure the amperes of all pump motors before hydronic balancing is started and shall take proper steps to correct and report any overloads.
3. The Test and Balance Agency shall not continue the hydronic balancing if at any time hazardous conditions are observed. These conditions shall be reported and corrected before proceeding further.
4. If, during the hydronic balancing, the Test and Balance Agency determines any conditions that will not permit proper balancing, the fact shall be reported to the Engineer immediately.
5. The final position of each balancing valve shall be clearly marked. Any memory devices shall be set to permit closing and reopening the valve to its balanced setting.
6. The Test and Balance Agency shall verify that all devices are properly installed.

### B. Flow Meters and Balancing Devices:

1. Fluid flow quantities shall be measured using the installed meters or balancing devices.
2. The Test and Balance Agency shall apply any necessary correction factor to the indicated value to account for the density of the fluid flowing in the system.
3. The initial and final readings of all meters or balancing devices shall be included on the Report Form. All pertinent information regarding each meter or balancing device shall be listed, such as:
  - a. Location
  - b. Manufacturer
  - c. Type
  - d. Size
  - e. Rating:
    - 1) GPM
    - 2) Pressure differential

C. Constant Flow Pumping Systems:

1. The following values shall be recorded:
  - a. Total GPM
  - b. Motor voltage and amperes
  - c. Discharge static pressure
  - d. Suction static pressure
  - e. Block tight head

2.4 EXISTING SYSTEMS:

A. General:

1. All hydronic systems which are to remain but are modified in any manner or are listed to be tested shall be tested before demolition begins.
2. The test and balance contractor shall utilize an ultrasonic meter to measure existing water flows where existing water flows are to be measured. If there are proper flow measuring devices installed, the test and balance contractor may use the installed devices.
3. Where ultrasonic meters are used on existing insulated systems, the contractor shall remove insulation as needed and repair insulation and finish to match existing when testing is completed.

B. Balancing Requirements

1. The Engineer shall provide direction on any changes to be made to the existing equipment's water balance. After renovation work is completed, the existing equipment shall be rebalanced or, if no changes are required, equipment shall be retested.

C. Locations shall include, but not be limited to, the following:

1. Equipment water flows and airflows indicated on the plans.
2. Pump total flows and pressures.

D. Reports:

1. A test and balance report shall be submitted before demolition and after renovation is completed for all systems which are required to be measured.

### PART 3 - EXECUTION

#### 3.1 SUBMITTALS:

- A. The Contractor shall submit to the Engineer the following information within thirty days after the award of the contract:
  - 1. The name of the Test and Balance Agency.
  - 2. Name and registration number of the certified testing technician.
- B. The Contractor shall submit to the Engineer the following information after the award of the contract.
  - 1. Detailed testing procedures including list of instruments, task performed, model and serial number and date last calibrated.
  - 2. Agenda including schedule of work with approximate duration of each phase, approximate date of field inspections, and required start date to meet scheduled completion date.
  - 3. Report forms.
- C. An approved copy of each submittal must be received by the Test and Balance Agency before work is begun.

#### 3.2 CONTRACTOR REVIEWS AND INSPECTIONS:

- A. The Test and Balance Agency shall perform one pre-construction plan check and submit comments to Engineer.

#### 3.3 ENGINEER REVIEW:

- A. The Engineer shall, at their discretion, recheck any or all of the test and balance work within 120 days of receipt of report. The Test and Balance Agency shall provide ample number of technicians and test equipment to perform the tests required.
- B. Upon completion of the Engineer's recheck, the testing and balancing report, or portions thereof, shall be accepted or rejected. All parts not accepted shall be retested and rebalanced.
- C. Systems shall be tested, rebalanced and rechecked until accepted by all parties.

#### 3.4 EXISTING SYSTEMS:

- A. Pre-demolition test report shall be submitted before demolition begins.
- B. Balance systems as directed by Engineer after renovation work is completed and provide renovation test report.

3.5 MOTOR CAPACITY:

- A. At no time shall the motor exceed full load amps. Motor shall load into service factor only if written permission is received from the engineer.

END OF SECTION 23 0593

## SECTION 23 0601 - HYDRONIC SPECIALTIES

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of hydronic specialties where shown on the drawings and specified hereinafter.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section.

#### 1.3 QUALITY ASSURANCE:

##### A. Codes and Standards:

1. All work shall meet or exceed the standards and procedures (latest editions) of the following:
  - a. USA Standard Face to Face Dimensions of Ferrous Flanged Valves ANSI B16.10
  - b. USA Standard for Cast Iron Pipe Flanges and Flanged Fittings. ANSI B16.1
  - c. SHEMA

- B. All pressure vessels including expansion tanks, air separators and similar equipment shall be constructed, tested and stamped in accordance with ASME standards.

- C. Equipment shall be stamped for 125 psig working pressure.

##### D. Manufacturers:

1. The following suction diffuser manufacturers are acceptable:
  - a. Bell and Gossett
  - b. Taco



- c.     Meuller
- d.     Wheatley
- e.     Armstrong

## PART 2 - PRODUCTS

### 2.1     SUCTION DIFFUSERS:

- A.     All suction diffusers shall have cast iron or ductile iron bodies, removable cylindrical screens of Monel or stainless steel, and suitable flanges or tappings to connect with the piping they serve.
- B.     Provide 3/4" minimum drain tapping for blowoff and pipe support.
- C.     Strainer screen shall have a 5:1 free area opening. Startup screen shall be 20 mesh and permanent screen shall be 5/32" perforated.

## PART 3 - EXECUTION

### 3.1     SUCTION DIFFUSER:

- A.     Startup screen shall be removed after final flushing of system.

END OF SECTION 23 0601

## SECTION 23 0700 - HVAC INSULATION

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of insulation required for thermal and acoustical installation on all mechanical equipment, piping, ductwork, and appurtenances where shown on the drawings and specified hereinafter under applicable sections of this specification.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 0716 - HVAC Equipment Insulation
  2. Section 23 0719 - HVAC Piping Insulation

#### 1.3 QUALITY ASSURANCE:

##### A. Flame and Smoke Spread Ratings:

1. All insulation materials must have a maximum 25/50 flame/smoke rating as tested by ASTM E-84, NFPA 255 and UL 723 except where specifically noted otherwise.
2. Flame/smoke rating shall be a minimum of 25/250 in equipment rooms where the room is not used as a plenum.
3. Flame/smoke rating shall be a minimum of 25/250 outdoors.

##### B. Insulation thickness shall equal those recommended by ASHRAE 90.1 or as scheduled, whichever is greater. Surface temperatures shall be below 140 degrees F.

##### C. Accessories such as adhesives, mastics, cements, and tapes for fittings shall have the same component rating as listed above.

- D. All products or their shipping cartons shall bear a label indicating that flame and smoke ratings do not exceed requirements. Treatment of jackets or facing to impart flame and smoke safety shall be permanent. The use of water soluble treatments is prohibited.
- E. Installation and materials shall meet the requirements of the International Building Codes.
- F. All insulation work shall be applied by mechanics normally employed in the trade. All insulation shall be installed in accordance with the manufacturer's recommendations.
- G. All insulation furnished under this Division of the specifications shall be the product of one manufacturer except for special applications.
- H. Manufacturers:
  - 1. The following manufacturers of sealants, adhesives, and mastics shall be:
    - a. Foster
    - b. Childers
    - c. Mon-Eco

## PART 2 – PRODUCTS

### 2.1 MASTICS, SEALANTS, AND ADHESIVES:

- A. General:
  - 1. Materials shall be as recommended by the insulation manufacturer.
  - 2. Products shall be applied as recommended by the manufacturer for that specific application.
  - 3. The number of coats and thicknesses shall meet or exceed the manufacturer's recommendation or as indicated in these specifications or on the plans, whichever is greatest (coats and thickness).
  - 4. Materials shall meet LEED requirements for low emitting products.
- B. Finish:
  - 1. When material is applied where it is to be painted, the material shall be coated, if necessary, to allow the material to be properly painted without use of special paints or primers.

## PART 3 - EXECUTION

3.1 GENERAL:

- A. All insulation materials shall be delivered and stored in manufacturer's container and kept free from dirt, water, chemical and mechanical damage.
- B. Insulation shall be applied by experienced workmen in a workmanlike manner.
- C. Insulation shall not be applied until all pressure testing has been completed, inspected and released for insulation application.
- D. Surfaces to be insulated shall be clean and dry.
- E. All insulation joints shall be butted firmly together and all jackets and tapes shall be smoothly and securely installed.
- F. Items that are factory insulated shall not receive additional insulation where not otherwise specified.

3.2 INSTALLATION:

- A. General:
  - 1. Insulation on cold surfaces where vapor barrier jackets are used shall be applied with a continuous, unbroken vapor seal.
  - 2. Insulation on equipment that must be opened periodically for inspection, cleaning, and repair must be constructed so insulation can be removed and replaced without damage.

END OF SECTION 23 0700

## SECTION 23 0716 - HVAC EQUIPMENT INSULATION

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of insulation required for thermal and acoustical installation on all Mechanical Equipment and appurtenances where shown on the drawings and specified hereinafter.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 0700 - HVAC Insulation

#### 1.3 QUALITY ASSURANCE:

##### A. Manufacturer:

1. The following elastomeric insulation manufacturers are acceptable:
  - a. Armacell
  - b. K-Flex
  - c. Aeroflex
  - d. Nomaco

### PART 2 - PRODUCTS

#### 2.1 INSULATION FOR COLD EQUIPMENT AND ACCESSORIES:

##### A. Chilled Water Pumps:

1. Insulate with minimum 2 layers of 3/4" thick flexible elastomeric closed cell sheet type insulation. Thermal conductivity (K) is .27.

PART 3 - EXECUTION

3.1 MULTI-LAYER INSTALLATION:

- A. Joints shall be staggered.

3.2 PUMPS:

- A. Insulate entire volute up to bearing housing.

END OF SECTION 23 0716

## SECTION 23 0719 - HVAC PIPING INSULATION

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools, and equipment and perform all operations in connection with the installation of insulation required for thermal and acoustical installation on all piping including valves, mechanical couplings, fittings, flanges, strainers, expansion joints, and appurtenances where shown on the drawings and specified hereinafter.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 0700 - HVAC Insulation

#### 1.3 QUALITY ASSURANCE:

##### A. Manufacturers:

1. The following fiberglass piping insulation manufacturers are acceptable:
  - a. Owens/Corning
  - b. Knauf
  - c. Johns Manville
2. The following aluminum jacket manufacturers are acceptable:
  - a. Childers
  - b. RPR Products
  - c. GLT Products

3. The following rigid hydrous calcium silicate insulation manufacturers are acceptable:
  - a. Pabco
  - b. Johns Manville
  - c. Calsilite
4. The following polyisocyanurate foam insulation manufacturers are acceptable:
  - a. ITW
  - b. Hitherm
  - c. Dyplast

## PART 2 - PRODUCTS

### 2.1 GENERAL:

- A. Pipe insulation shall comply with the International Energy Conservation Code or these specifications, whichever is greater.

### 2.2 TYPES OF INSULATION:

#### A. Fiberglass Insulation:

1. Physical properties:
  - a. Thermal conductivity (k) is .25 at 100 degrees F.
2. Jacket:
  - a. ASJ jacket with or without self-sealing adhesive system
3. Basis of design insulation shall be:
  - a. Owens/Corning Heavy Density Fiberglass Insulation ASJ/SSL or ASJ

#### B. Elastomeric Insulation:

1. General:
  - a. The insulation shall have a factory applied adhesive closure system.



2. Physical properties:
    - a. Thermal conductivity (k) is .27 at 75 degrees F.
    - b. Water transmission is .08 perms – inch.
    - c. Will not significantly contribute to fire.
  3. Basis of design insulation shall be Armacell type AP Armaflex or type AP/SS or equal.
- C. Calcium Silicate Insulation:
1. General:
    - a. Asbestos free, rigid hydrous calcium silicate with FRP Jacket and self-sealing flaps.
  2. Precision molded in half sections, segments and quads.
  3. Insulation shall be full pipe coverage (360 degrees).
  4. Insulation shall be equal to thickness of adjacent pipe insulation.
  5. Insulation shall extend past the shield by 1" (minimum) each side.
  6. Insulation shall be suitable for 20 degrees F to 1200 degrees F temperature and 100 psi compressive strength (minimum).
  7. Basis of design insulation shall be:
    - a. Owens/Corning Kaylo
- D. Polyisocyanurate Foam Insulation:
1. Physical properties:
    - a. Adsorption of water (96 hr.) is 0.7% by volume.
    - b. Vapor permeability is 4.0 perm-in.
    - c. Composition is closed cell (90% min).
    - d. Compression strength is 18 psi perpendicular to rise (width).
    - e. Density is 2 lb./ft<sup>3</sup>.
    - f. Thermal conductivity is .19 Btu-in/hr ft<sup>2</sup> F at 75 deg F.
    - g. Service temperature is -297 deg F to 300 deg F (continuous).

2. Vapor barrier:
  - a. Pipe vapor barrier shall be Saran 560 CX vapor retarder film.
3. Pipe insulation not located inside a building shall have a maximum 25/450 flame/smoke rating. Basis of design insulation shall be:
  - a. ITW Trymer 2000XP

## 2.3 PIPE INSULATION APPLICATION:

- A. General:
  1. All fittings, valves, and accessories in the piping system shall be insulated similar to the piping system.
- B. Fiberglass Pipe Insulation:
  1. Fiberglass pipe insulation is required for all indoor chilled water piping systems.
- C. Polyisocyanurate Foam Pipe Insulation:
  1. Polyisocyanurate foam pipe insulation is required for all outdoor chilled water piping systems except elastomeric insulation of equal thickness shall be used at flexible pipe connectors at the chiller.
- D. Rigid Hydrous Calcium Silicate Pipe Insulation:
  1. Provide rigid hydrous calcium silicate pipe insulation at all pipe supports and hangers on indoor chilled water piping systems.

## 2.4 FITTINGS:

- A. General:
  1. Fittings shall be factory molded except where indicated otherwise.
  2. Fittings shall have a factory installed vapor barrier or have a field installed vapor barrier equal to the pipe vapor barrier.
- B. Fiberglass Pipe Insulation:
  1. Fittings shall be insulated with 3/4 PCF density, all service faced FSK duct wrap, 2" thick.
- C. All Other Insulation:
  1. Piping (all sizes)

- a. Per manufacturer's recommendations.

## 2.5 JACKETING:

### A. Aluminum Jacketing:

#### 1. General:

- a. Jacketing shall be manufactured from Type 1100, 3003, 3105 and 5005 alloys.
- b. Jacketing on piping shall be embossed.
- c. Jacketing on equipment shall be smooth.

#### 2. Thickness:

- a. Pipe jacket shall be .020 inches.
- b. Equipment jacket shall be .024 inches.

#### 3. Vapor Barrier:

- a. Continuous lamination to jacket.
- b. Three (3) mil polyethylene film with 40 lb. virgin kraft paper.

## 2.6 FINISH:

### A. Exposed Piping (in equipment rooms) shall be:

- 1. Glass fabric and two coats mastic, one coat vapor barrier sealant.

### B. Outdoor Piping:

- 1. Aluminum jacketing except at flexible pipe connectors.

### C. Fittings:

- 1. Fittings adjacent to ASJ jacket shall be finished with PVC jacket.
- 2. Fittings adjacent to jacketing other than ASJ shall be finished similar to piping.

## 2.7 GLASS FABRIC:

### A. General:

- 1. Fabric shall be 100% fiberglass scrim with non combustible finish.

2. Fabric shall be 1.9 oz. + .3 oz. per square yard.
3. Thread count shall be 20 x 10 (yarns per inch).

## 2.8 ADDITIONAL INSULATION REQUIREMENTS:

- A. Accessories subject to condensation:
  1. This shall include but not be limited to:
    - a. Piping to gauge
    - b. Valve stems
  2. Wrap component subject to condensation with self-stick neoprene insulating tape.

## PART 3 - INSULATION THICKNESS SCHEDULES

### 3.1 FIBERGLASS INSULATION SCHEDULE:

- A. Chilled Water Piping (40 Deg. F - 60 Deg. F):
  1. 1½" pipe up to 6" pipe - 1½" thk.

### 3.2 POLYISOCYANURATE FOAM INSULATION SCHEDULE:

- A. Chilled Water Piping (40 Deg. F - 60 Deg. F) exposed to ambient:
  1. 5" pipe up to 10" pipe - 2" thk.

## PART 4 - EXECUTION

### 4.1 INSTALLATION:

- A. Apply adhesives, sealants, coatings, and other materials as recommended by the manufacturer.
- B. Sectionally seal all butt ends of pipe insulation on chilled water lines at fittings and every 21 feet (minimum) of straight runs with vapor barrier sealer.
- C. Outward clinching staples shall be used on ASJ jacketing and be sealed with vapor barrier sealer on cold pipe. Piping not easily accessible for repair or maintenance shall be banded with three aluminum bands per section.

- D. All penetrations through vapor barrier shall be sealed with vapor barrier sealer. Where metallic jacketing is used, all penetrations through jacket and at termination of jacket shall be sealed.
- E. Insulation for heat traced pipe shall be sealed with tape or adhesive. Staples shall not be used.
- F. Notch out polyisocyanurate insulation for pipe heat tracing.

#### 4.2 SUPPORTS:

- A. Supports that are secured directly to cold surfaces shall be adequately insulated and vapor sealed to prevent condensation.
- B. Jacketing shall be carried through hanger on inside of 16 gauge sheet metal shields and sealed to maintain continuous vapor barrier.
- C. Where inserts occur at pipe supports and guides, provide the following:
  - 1. On cold pipes apply a wet coat of vapor barrier lap cement on all butt joints and seal the joints with 3" wide vapor barrier tape or band.

#### 4.3 FITTINGS:

- A. General:
  - 1. Apply vapor barrier to insulation and all seams.
- B. FSK Ductwrap:
  - 1. Apply pressure sensitive vapor barrier tape.

#### 4.4 METALLIC JACKETING:

- A. Jacketing shall be held in place with a friction type, Z lock, or 2" overlap joint. Joints shall be completely sealed along the longitudinal seam and shall be installed to shed water. Circumferential joints shall be sealed by use of 2" wide butt strips. ½" bands shall secure jacketing. Space as recommended by the manufacturer.
- B. Straps shall secure jacket. Straps shall be the same material as jacket. Provide 1/2" straps for jackets up to 12" in diameter.

#### 4.5 GAUGES IN HYDRONIC SYSTEMS:

- A. Elastomeric tape shall be wrapped around cold or hot surfaces of gauges. Tape shall be applied with a minimum of 50% overlap.

END OF SECTION 23 0719

SECTION 23 0900 - INSTRUMENTATION AND CONTROLS FOR HVAC (GENERAL)

PART 1 - GENERAL

1.1 SCOPE OF WORK:

A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of the building environmental controls shown on the drawings and specified hereinafter.

B. Description:

1. Control and instrumentation work shall include:
  - a. Temperature control
  - b. Equipment interlock and controls
  - c. Wiring for automatic controls

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 0904.04 – System Integration Contractor (Niagara)

1.3 QUALITY ASSURANCE:

A. Codes and Standards:

1. All environmental controls shall comply with all local codes and ordinances, and meet or exceed the following standards:
  - a. Underwriters Laboratories
  - b. NEMA Standards
  - c. National Electric Code
  - d. Scientific Apparatus Makers Associates Standard PMC 20.1 for Process Measurement and Control Terminology

- e. Scientific Apparatus Makers Associates Standard PMC 20.2 for Process Control Performance
- f. NFPA 90A
- B. Control circuit wiring shall meet NFPA Standard 70, Article 725, for remote control, low energy power, low voltage power and signal circuits.
- C. All control equipment shall be the product of one manufacturer whenever practical.

## PART 2 - PRODUCTS

### 2.1 SYSTEM:

- A. Provide all sensors, transmitters, controllers, actuators, control panels, conduit, wiring, accessories and appurtenances for a complete control system.
- B. Provide switches, fuses, disconnects and all other devices necessary for protection and convenient operation of system.
- C. The contractor shall be responsible for providing power wiring, conduit, breakers and final connections for all control devices, panels, and components unless specifically shown on electrical plan.
- D. The control system shall be on normal power.

### 2.2 CONDUIT:

- A. General:
  - 1. All control conduit shall be furnished and installed under this division except where specifically indicated otherwise.
  - 2. All control wiring in existing construction shall be run in conduit.
  - 3. Conduit shall be provided in accordance with the Electrical Division of this specification unless noted otherwise in these specifications.
  - 4. Outdoor conduit shall be GRC.
  - 5. Indoor conduit shall be EMT.
  - 6. Conduit shall be 3/4".

### 2.3 CONTROLS WIRING:

- A. Wiring for low voltage circuits generally shall be No. 18B and S gauge or larger RSH-2 heat resistant.



- B. Cables of two or more conductors, not smaller than 22 B and S gauge if shielded or No. 18 B and S gauge if not shielded, may be used for low voltage d-c and electronic circuits carrying less than 1.50 amperes, in lieu of individual wires.
- C. Cables carrying a-c circuits sensitive to external fields shall be shielded.
- D. Cables having fewer than 12 conductors shall have thermoplastic or rubber insulation for 300 volts or more and a heavy outer braid or thermoplastic sheath. Shields shall be grounded to building's grounding system, using wire not smaller than No. 14 B and S gage. Shields shall not be grounded to conduit systems or building piping.
- E. Cables shall terminate in solder or screw type terminal strips. All terminal strips shall be numbered.
- F. Cables shall not be tapped at intermediate points.
- G. All wires, whether individual or in cables, shall be color coded and numbered for identification in accordance with the National Electric Code.

#### 2.4 TRANSFORMERS:

- A. Transformers shall be furnished and installed for supplying current to control equipment as required.
- B. Transformers shall conform to NEMA standards, shall be capable of supplying 125 percent the connected load, shall be enclosed in U.L. listed cabinets, ventilated, with conduit connections, and provided with fused disconnect switches on primary side and on secondary side.

#### 2.5 CONTROL VOLTAGE:

- A. Voltage shall not exceed 24V.

#### 2.6 SENSORS, TRANSMITTERS, AND OTHER CONTROL DEVICES:

- A. General:
  - 1. Provide the type device specified for the specific application. Where the device is not specifically indicated, provide the device best suited to provide the control specified.
- B. Location of device:
  - 1. Device shall be located as indicated on the drawings or as stated in the specifications.
  - 2. Where no device location is indicated or specified, the device shall be located as recommended by the manufacturers to provide the best practical results.

3. Where the location indicated on the drawings or stated in the specifications does not provide the best practical results, the manufacturers shall provide recommendations for relocating the device.
4. It shall be the responsibility of the contractor to identify all conflicts between indicated device locations and manufacturers recommended locations prior to installation of any related components (i.e., sensor wells, conduit, etc.).

## 2.7 CONTROL PANELS:

### A. General:

1. All controllers, relays, switches, etc., for equipment shall be mounted in enclosed control panels with key lockable, piano hinged door.
2. Label each panel properly identifying function or service of panel and all surface mounted devices.
3. Control panels shall be extruded or formed, cold-rolled steel, enamel surfaced, with full length mounting brackets, drilled wall mounting holes.
4. The control panel shall be key lockable.
5. Provide a 24V control transformer.

## PART 3 - EXECUTION

### 3.1 INSTALLATION:

#### A. General:

1. The Building Environmental Controls Contractor shall be responsible for a complete operational system.
2. The installation shall include:
  - a. Drawings
  - b. Supervision
  - c. Interlocks
  - d. Adjustments
  - e. Verification
3. Location of sensing elements shall be the responsibility of the installer.

- B. Wiring splices shall not be permitted in electrical panelboards, junction boxes and switchgear.

3.2 WIRING:

- A. All control wiring within starters shall be installed in a workmanlike manner and neatly laced.

END OF SECTION 23 0900

SECTION 23 0900.04 - SYSTEM INTEGRATION CONTRACTOR (NIAGARA)

PART 1 – GENERAL

1.1 SCOPE OF WORK:

A. General:

1. System Integrator (SI) shall furnish all labor, materials, tools, and equipment and perform all operations in connection with the integration of the Building Automation System (BACS) into the Owner's existing Niagara Framework automation infrastructure.

1.2 QUALITY ASSURANCE:

A. Manufacturers:

1. The following SI Contractors are acceptable:
  - a. Schneider Electric
  - b. ECS
  - c. Platinum Building Automation
  - d. Studebaker Controls

PART 2 – PRODUCTS

2.1 EXISTING SYSTEM:

- A. The existing system in place is an Invensys MNL-800 controller(s).

2.2 CONTROLS:

- A. The new controls system shall incorporate Vykon JACES.
- B. Contractor shall only use JACES with an open license.
- C. All new controls shall be compatible with the existing Niagara Framework BMS and connect and integrate the new system into the existing system to form a single seamless system. Graphics, alarming, and histories shall be created on the existing server.

2.3 CHILLER CONTROLS:

- A. The Owner purchased chiller is ordered with BacNet IP controls.

PART 3 – EXECUTION

3.1 COORDINATION:

- A. Contractor shall coordinate the Niagara Framework version with the District's existing version.

3.2 CONTROLS INSTALLATION:

- A. Controls contractor shall perform all the necessary database work (in the JACE and Server) to add the new system to the District's existing graphics package.
- B. The controls contractor shall utilize the District's existing standards and provide graphics and object databases consistent with the District's existing system.

END OF SECTION 23 0900.04

## SECTION 23 0993 - SEQUENCE OF OPERATIONS FOR HVAC CONTROLS AND POINTS LIST

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of controls system shown on the drawings and specified hereinafter.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 0900 - Instrumentation and Control for HVAC (General)
  2. Section 23 0993.3 - Sequence of Operation (Hydronic Systems)
  3. Appendix D – Original Points List

### PART 2 - SEQUENCE OF OPERATION (Not Used)

### PART 3 - POINT SCHEDULE

#### 3.1 DEFINITION OF POINTS:

##### A. Binary Output:

- |                  |                            |
|------------------|----------------------------|
| 1. Control Relay | - Energize/de-energize     |
| 2. Solenoid      | - Steam Valve<br>Gas Valve |
| 3. Hand/Off/Auto | - Starter                  |

##### B. Analog Output:

- |            |                 |
|------------|-----------------|
| 1. Cooling | - Control Valve |
|------------|-----------------|

- |                      |                       |  |
|----------------------|-----------------------|--|
| 2.                   | Heating               | - Control Valve<br>SCR Heater                        |
| 3.                   | Humidification        | - Control Valve                                      |
| 4.                   | Economizer            | - Dampers  |
| 5.                   | Position Adjust       | - Fan Drives<br>Pump Drives<br>Dampers<br>VAV Damper |
| <br>C. Binary Input: |                       |  |
| 1.                   | Differential Pressure | - Fan Status<br>Pump Status                          |
| 2.                   | Pressure Switch       | - Pressure   |
| 3.                   | Flow Switch           | - Fan Status<br>Pump Status                          |
| 4.                   | Fire/Smoke            | - Smoke Detector<br>Fire Sensor                      |
| 5.                   | Freeze                | - Low Limit  |
| 6.                   | Filter                | - Filter Pressure                                    |
| 7.                   | Setback Override      | - Night Setback<br>Override                          |
| <br>D. Analog Input: |                       |  |
| 1.                   | Humidity              | - Humidity   |
| 2.                   | Temperature           | - Temperature  |
| 3.                   | Static Pressure       | - Static Pressure                                    |
| 4.                   | Fan Speed/Load        | - Fan Drives   |
| 5.                   | Air Flow              | - Air Flow   |

END OF SECTION 23 0993

## SECTION 23 0993.3 - SEQUENCE OF OPERATION (HYDRONIC SYSTEMS)

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of controls system shown on the drawings and specified hereinafter.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section.

### PART 2 - SEQUENCE OF OPERATION

#### 2.1 AIR COOLED CHILLER (PRIMARY/SECONDARY):

##### A. General:

1. The chiller shall be controlled per the existing chiller sequence of operation controller.

##### B. Chiller Pump:

1. When a chiller is commanded on, the chiller pump shall run for "X" minutes prior to energizing the chiller.
2. Upon proof of chilled water flow, the chiller shall energize.
3. The chilled water pump shall run until shutdown permitted by chiller controls.

##### C. Failure Sequence:

1. Chillers which shut down or are unable to start due to various system failures shall attempt to restart for conditions acceptable to the manufacturers. For example, if single phasing occurs, chiller shall attempt to restart at an interval and maximum number of times (programmable).



2. The chillers shall not attempt to restart for any condition deemed unsafe or inadvisable by the chiller manufacturer.

END OF SECTION 23 0993.3

## SECTION 23 2113 - HVAC PIPING (GENERAL)

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of pipe, pipe fittings, accessories and appurtenances where shown on the drawings and specified hereinafter.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. All sections of Division 23 specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 0519 - Meters and Gauges for HVAC Piping
  2. Section 23 0523.01 - General Duty Valves for HVAC Piping
  3. Section 23 0529 - Hangers and Supports for HVAC Piping
  4. Section 23 0548 – Sound, Vibration, and Seismic Control for HVAC

#### 1.3 QUALITY ASSURANCE:

##### A. Codes and Standards:

1. All pipe and pipe fittings shall comply with American National Standards Institute Code, all local codes and ordinances, and meet or exceed the standards and procedures (latest editions) of the following:
  - a. Ferrous Pipe and Fittings:
    - 1) Malleable Iron Screwed Fittings. ANSI B16.3
    - 2) Steel Flanges. ANSI B16.5
    - 3) Steel Fittings. ANSI B16.9
    - 4) Steel Pipe, Welded or Seamless, Black or Galvanized. ASTM A53, A106, and A120

- 5) Steel Pipe, Welded or Seamless (for coiling) Black or Galvanized. ASTM A53
  - 6) Wrought Iron Pipe. ASTM A72
- B. **Material shall be new domestic materials (made in the USA) of standard manufacture suitable for specified use.**
- C. Manufacturer shall certify materials conform to reference specifications, or specification number shall be cast into or marked on each piece.
- D. Manufacturers:
  - 1. The following grooved pipe fittings (steel) manufacturers are acceptable:
    - a. Victaulic
    - b. Anvil
    - c. Shurjoint

## PART 2 - PRODUCTS

### 2.1 GENERAL:

- A. No materials shall be co-mingled within the same system except those which are specifically approved in these specifications.

### 2.2 PIPE SCHEDULE:

- A. Chilled Water Supply and Return Piping:
  - 1. Piping 3" through 12" shall be schedule 40 black steel, butt welded, or threaded.
- B. Pressure Gauge Piping:
  - 1. Piping on chilled water and hot water systems shall be seamless soft or hard drawn, Type L, copper.
  - 2. Pipe shall be same size as gauge connection.

### 2.3 MECHANICAL GROOVED PIPE AND COMPONENTS (STEEL PIPING):

- A. Mechanical Grooved Piping Systems (General):
  - 1. The fittings, valves, and piping shall be suitable for a mechanical grooved piping system.

2. The system may be used at the contractor's option for the following piping systems:
    - a. Above grade hydronic piping (steel piping only)
  3. Components shall include fittings, couplings, valves, flanges, and suction diffusers.
  4. Components shall be rated for maximum pump head plus 50%.
  5. All grooved joint couplings, fittings, and specialties shall be of a single manufacturer.
  6. Grooving tools shall be of the same manufacturer as the grooved components.
- B. Couplings (General):
1. Couplings shall be fabricated of ductile iron, carbon steel nuts and bolts, and gasket.
  2. Coupling shall be self-centering and lock the pipe in place water-tight.
  3. Internal water pressure shall increase the gasket's ability to seal the pipe up to the gasket design limits.
  4. Non-cast couplings shall be fabricated from standard weight steel or heavier.
- C. Couplings (Rigid):
1. All couplings shall be of rigid design except where required at pumps.
  2. Couplings shall conform to the hanging requirements of ANSI B31.1.
  3. Housing shall be cast with offsetting angle pattern bolt pads.
- D. Fittings, Valves, Strainers, Flanges, and Suction Diffusers:
1. Provide grooved or shouldered ends.
  2. Basis of design check valves shall be:
    - a. Victaulic Series 716 or Series 716H or equal provided by the approved piping manufacturer.
  3. Basis of design butterfly valves shall be:
    - a. Victaulic 300 Masterseal or equal provided by the approved piping manufacturer.

E. Piping:

1. Piping shall be grooved in accordance with the coupling, fittings, and valve manufacturer requirements.
2. All piping grooves shall be field measured by the installing contractor to verify that the groove diameter meets the manufacturer's published groove guidelines.

2.4 FITTINGS AND CONNECTIONS:

A. Fittings shall be the same material and weight as the pipes joined by the fitting unless noted otherwise. Fittings shall comply with all applicable standards.

B. Prohibited Fittings:

1. The following are prohibited fittings:
  - a. Bull head tee's
  - b. Street ells
  - c. Bushings
  - d. Close nipples
  - e. "T" drill fittings
  - f. No mitered fittings in welded systems

C. Welded Fittings and Pipe Connections:

1. All welded pipe and fittings shall be delivered to job with machine beveled ends. Where necessary, beveling may be done in the field by gas torch.
2. Welded pipe shall have flanges at valves and elsewhere to permit disassembly for maintenance.
3. With the exception of pipe welded end-to-end, all welded joints shall be made by the use of one-piece welding neck flanges, nozzles, elbows and tees.
4. All welding elbows shall be long radius.
5. Welding end fittings shall have the same bursting pressure as pipe of the same size and schedule.

D. Flanged Fittings:

1. Flanges and flanged fittings shall conform to ANSI standards and ASTM standards.

### PART 3 - EXECUTION

#### 3.1 GENERAL:

- A. Pipe shall be installed in strict accordance with manufacturer's recommendations.
- B. Cut pipe accurately to measurements established at building or site, and work into place without springing or forcing, properly clearing all window, doors, and other openings or obstructions. Excessive cutting or other weakening of building to facilitate piping installation will not be permitted. Piping shall line up flanges and fittings freely and shall have adequate unions and flanges so that all equipment can be disassembled for repairs.
- C. Each length of pipe, as erected, shall be upended and rapped. Dirt and all foreign matter shall be cleaned from pipe and fittings before installation.
- D. All turns and connections shall be made with long radius fittings as specified hereinafter.
- E. Provide proper provision for expansion and contraction in all portions of pipework, to prevent undue strains on piping or apparatus connected therewith.
- F. Piping shall be installed straight and level.

#### 3.2 BLACK STEEL PIPING:

- A. Welded piping shall conform to the following:
  - 1. All welded joints for steel pipe shall be of the open V-butt following approved welding procedures for metallic arc or oxy-acetylene carbon steel welded pipe joints.
  - 2. All scale and oxidation must be removed with hammer, chisel or file, and the bevel left smooth and clean.
  - 3. Weld metal shall be thoroughly fused with base metal at all sections of weld and penetration of weld shall include unbeveled portion and shall extend to inside walls of pipe.

#### 3.3 PIPING TO EQUIPMENT:

- A. Where items in piping such as control valves, pumps, and equipment connections are different sizes than the piping, reducers and increasers shall be installed adjacent to such items so there is a minimum of reduced size pipe.
- B. Eccentric reducers shall be installed on suction side of pumps allowing continuous flow of air.
- C. All piping connections to equipment, valves, and other system components shall be made with offsets with flanges or unions so arranged that the equipment can be serviced or removed without dismantling the piping.

- D. Provide all final pipe connections to systems and equipment.

### 3.4 PIPE INSPECTION:

- A. The Owner and Engineer reserve the right to inspect, sample, and test any pipe after delivery and to reject all pipe represented by any sample which fails to comply with the specified requirements. Inspection of pipe shall be for pits, blisters, rough spots, breakage, or other imperfections. Any pipe which has been rejected because of the above shall be conspicuously identified and immediately removed from the construction site.

### 3.5 MECHANICAL GROOVED PIPE AND COMPONENTS (STEEL PIPING):

- A. Site Inspection:

- 1. A factory trained representative of the mechanical coupling manufacturer shall visit the site and inspect the pipe and fittings.

- B. Installation:

- 1. Piping shall be supported at the location and spacing recommended by the manufacturer.
  - 2. If lubricant is recommended, provide lubricant recommended by the coupling manufacturer.

END OF SECTION 23 2113

## SECTION 23 2123 - HYDRONIC PUMPS

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of pumps and appurtenances where shown on the drawings and specified hereinafter.

#### 1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. All sections of Division 23 Specifications apply to this section. In addition, refer to these specification sections:
  1. Section 23 0548 – Sound, Vibration, and Seismic Control for HVAC

#### 1.3 QUALITY ASSURANCE:

- A. All control panels shall be UL listed.
- B. Manufacturers:
  1. The following end suction pumps (foot mounted volute) manufacturers are acceptable:
    - a. Bell and Gossett
    - b. Peerless Pump Co.
    - c. Taco
    - d. Weinman
    - e. Paco
    - f. Patterson
    - g. Armstrong



## PART 2 - PRODUCTS

### 2.1 GENERAL:

- A. Pumps shall be factory painted with machinery enamel.
- B. Pump shall be type indicated on schedule.
- C. All motors shall be premium efficiency motors.

### 2.2 BASE MOUNTED CENTRIFUGAL PUMPS (END SUCTION):

#### A. Performance:

- 1. Pumps shall be selected at plus or minus 20% of the pump best efficiency point.
- 2. The pump/capacity curve shall be continuously rising from maximum capacity up to the shutoff point.

#### B. General:

- 1. Provide end suction pumps as designated in the drawing schedules for each application.
- 2. Casing shall be close grained cast iron or stainless steel.
- 3. The pump casing shall be designed for not less than 175 psig working pressure for water service at temperature up to 225 degrees F.
- 4. Pumps with suction connections 2-1/2" and larger shall be equipped with flanges equivalent to ANSI 125-pound flange ratings. Pumps with suction connections 2 inches and smaller shall have threaded connections.
- 5. Design of pump casing shall allow removal of the rotating element without disconnecting the suction and discharge piping.
- 6. Tapped openings from all pumps shall be provided for priming, venting, draining, discharge and suction gauge connections.
- 7. End suction pumps shall have a foot mounted volute.
- 8. Pump shall be capable of withstanding a horizontal load of 0.5G without affecting pump operation.

#### C. Impeller:

- 1. Bronze or stainless steel cast in one piece
- 2. Single or double suction type

3. Dynamically and hydraulically balanced
4. Keyed to shaft
- D. Wear Rings (End Suction Pumps):
  1. Carbon steel
- E. Shaft:
  1. Shaft shall be dry shaft design.
  2. Shaft shall be a high carbon, solid, steel shaft meeting ANSI 1045 or 416 stainless steel.
  3. Shaft shall have stainless steel shaft sleeves.
- F. Seals:
  1. Pump shall be equipped with internally flushed unitized mechanical seal assemblies, mounted in 304SS sleeves, installed in enlarged tapered seal chambers.
  2. Seal flushing shall not require external flushing lines.
  3. Mechanical seal assemblies shall be unitized, single spring, EPR elastomer bellows with drive ring, carbon face rotating against a stationary silicon carbide face.
- G. Bearings:
  1. Bearings shall be interchangeable, evenly spaced to divide radial load equally.
  2. Housing to be completely sealed, making units suitable for outdoor installation.
  3. Grease lubricated ball bearings with grease relief to prevent over-lubrication, flood oil lubricated ball bearings or ring oil lubricated sleeve bearings.
  4. End suction pump bearings shall have a minimum L<sub>10</sub> life of 20,000 hours.
- H. Flexible Coupling:
  1. The coupling shall be capable of absorbing torsional vibration and of operating in variable speed applications.
  2. A spacer coupler shall allow for removal of pump's wetted end without disturbing pump volute or movement of the pump's motor and electrical connections.
  3. Coupling shall have a drop out spacer.
  4. Coupling shall be EPDM.

5. The coupling shall have an OSHA approved guard.
- I. Base Plate:
  1. Base plate (Motor Drive) shall be cast iron, channel steel or structural steel with drip collection chamber and tapped drain connections and a large opening for grouting.
  2. Jig drilled and tapped for pumps and NEMA frame motors.
- J. Accessories:
  1. Chilled water pumps shall be equipped with a factory installed welded seam drain pan under the pump head. The drain pan shall be constructed of 16 gauge galvanized sheet steel and shall have a 3/4" drain tapping.
  2. Provide a ball valve or needle valve on the vent tapping on the top of the casing.

### PART 3 - EXECUTION

#### 3.1 RELIEFS, DRAINS, AND VENTS:

- A. Pipe 3/4" drains from all pump drain pans to the nearest floor drain.

#### 3.2 ALIGNMENT:

- A. Final alignment for base mounted pumps shall be done after piping is completed and base has been grouted.
- B. Alignment shall be made with dial indicator to a tolerance of +.002".
- C. Report of alignment and start-up shall be submitted to A/E.

#### 3.3 SEALS:

- A. Seals to be replaced without charge if faulty operation or unusual wear occurs not caused by improper maintenance during guarantee period.
- B. Each pump shall be provided with a spare mechanical seal. The spare seals shall be packaged in the original carton from the factory and shall be delivered to the Owner at the time of the final inspection. Each spare seal shall be labeled to identify the seal by pump number.

3.4 IMPELLER:

- A. After testing and balancing has been performed, the contractor shall provide a second impeller for each pump system as recommended by the Test and Balance Agency to meet design conditions.

3.5 BASE MOUNTED PUMPS:

- A. Bolt to housekeeping pad and grout base with 3000 psi (min. ) concrete.
- B. Support suction and discharge fitting on housekeeping pad.

3.6 CLEANING:

- A. After completion of installation and realignment, rust and scale shall be removed from exposed surfaces of pump shafts.
- B. After cleaning shaft surfaces, a protective spray coating of lubricant/rust inhibitor shall be applied to the exposed to sight shaft surfaces.

END OF SECTION 23 2123

## SECTION 26 0500 - ELECTRICAL GENERAL REQUIREMENTS

### PART 1 - GENERAL CONDITIONS

#### 1.1 WORK INCLUDED:

- A. The work covered under these sections of the specifications consists of furnishing all labor, equipment, supplies and materials, and of performing all operations, including cutting, channeling, chasing, excavating and backfilling necessary for the installation of complete wiring systems, raceways, wiring, and electrical equipment in accordance with this section of the specifications and the accompanying drawings.
- B. The Electrical Work shall include, but not be limited to, the following:
  - 1. Electrical distribution system
  - 2. Wiring devices
  - 3. Raceway system
  - 4. Conductors and cables
  - 5. Fire Alarm system

#### 1.2 RELATED WORK:

- A. Related work to Division 26:
  - 1. Division 1
  - 2. The provisions, conditions, and requirements preceding and including general and supplemental conditions apply to and are a part of Divisions 26 and 28.

#### 1.3 DEFINITIONS:

- A. Provide: Furnish and install complete ready for use, including all accessories required for operation.
- B. Furnish: Purchase and deliver to the project site complete with every necessary appurtenance, support and accessories required for operation.
- C. Install: Unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project.

#### 1.4 DESCRIPTION OF SYSTEMS:

- A. Furnish and install all materials for systems, resulting upon completion, in functioning systems in compliance with performance requirements specified. The omission of express reference to any parts necessary for or reasonably incidental to a complete installation shall not be construed as a release from furnishing such parts.

- B. The wiring specified and shown on the drawings is for complete and workable systems. Any deviations from the wiring shown due to a particular manufacturer's requirements shall be made at no cost to either the contract or to the Owner. Changes in electrical service to equipment due to substitutions of equipment by any Divisions of this specification shall be at no additional cost to the Owner.

1.5 QUALITY ASSURANCE:

- A. All equipment and materials required for installation under these specifications shall be new and without blemish or defect. All equipment shall bear labels attesting to Underwriters Laboratories approval where subject to Underwriters Laboratories label service.
- B. Equipment and material which are not covered by UL Standard will be accepted provided equipment and material is listed, labeled, certified or otherwise determined to meet safety requirements of a nationally recognized testing laboratory. Equipment of a class which no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe will be considered, if inspected or tested in accordance with national industrial standards, such as NEMA, ICEA or ANSI. Evidence of compliance shall include certified test reports and definitive shop drawings.
- C. All equipment of one type (such as panelboards, breakers, etc.) shall be the products of one manufacturer.

1.6 REQUIREMENTS OF REGULATORY AGENCIES/CODE COMPLIANCE:

- A. Contractors shall submit all items necessary to obtain all required permits to the appropriate Regulatory Agencies, obtain all required permits, and pay all required fees.
- B. All work shall conform to the following Building Codes:
  - 1. National Electrical Code (NEC-2017)
  - 2. National Electrical Safety Code (NESC) latest edition
  - 3. International Building Code (IBC 2018)
- C. All work shall conform to all federal, state and local ordinances.
- D. References to the National Electrical Code and National Fire Protection Association (NFPA) are a minimum installation requirement standard. Design drawings and other specification sections shall govern in those instances where requirements are greater than those specified in the NEC and NFPA.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS:

- A. All products shall be new (except where noted) and unused and without blemish or defect.

2.2 SUBSTITUTIONS:

- A. All requests for substitutions should be submitted so as to be received by the Architect/Engineer at least 10 working days before bid date and must be approved before award of Contract.
- B. Submittals shall be concise, clear, and brief as possible. Requests shall be accompanied by samples, descriptive literature and engineering information, as necessary, to fully identify and appraise the product.
- C. Items approved shall not be construed as authorizing any deviations from the plans and specifications unless such deviations are clearly indicated in the form of a table of compliance that is enclosed with the submittals. The table of compliance shall clearly identify all deviations from the specifications with clear proof of equality for each case of deviation. Each item in the table of compliance shall be marked to show specification reference including the section and paragraph numbers.
- D. Contractor shall be responsible for verifying all dimensions with available space conditions (with provisions for proper access, maintenance, part replacement, and for coordination with other trades--electrical, plumbing, structural, etc.) for proper services, and construction requirements. Contractor to bear any additional cost for required changes in associated items which are directly or indirectly related to a substituted unit.
- E. The Contractor shall furnish drawings showing all installation details, shop drawings, technical data and other pertinent information as required.
- F. Approval of the equipment does not relieve the contractor of the responsibility of furnishing and installing the equipment at no additional cost.
- G. Where Contractor substitutes equipment manufactured by an alternative vendor other than the Specification approved first named manufacturer, the Contractor shall become responsible for the operation of the product in the intended system, including all related costs required to make the design work, function, and fit in the allocated space.

PART 3 - EXECUTION

END OF SECTION 26 0500

## SECTION 26 0501 - ELECTRICAL COORDINATION

### PART 1 - GENERAL CONDITIONS

#### 1.1 INTERPRETATION OF CONTRACT DOCUMENTS:

- A. This section of the specifications and related drawings describe general provisions applicable to every section of Division 26.
- B. Attention is directed to Instructions to Bidders and to Division 1, General Conditions, which are binding in their entirety on this portion of the work in particular to paragraphs concerning materials, workmanship and substitutions.
- C. The drawings of necessity utilize symbols and schematic diagrams to indicate various items of work. Neither of these have any dimensional significance nor do they delineate every item required for the intended installations. The work shall be installed, in accordance with the intent diagrammatically expressed on the drawings, and in conformity with Contractor field-verified dimensions and on equipment shop drawings. No interpretation shall be made from the limitations of symbols and diagrams that any elements necessary for complete work are excluded.
- D. Certain details appear on the drawings which are specific with regard to the dimensioning and positioning of the work. These details are intended only for the purpose of establishing general feasibility. They do not eliminate the requirement for field coordination for the indicated work.

#### 1.2 EXISTING CONDITIONS:

- A. The Contractor shall visit the premises and thoroughly familiarize himself with all details of the work, working conditions, verify all dimensions in the field, advise the Engineer of any discrepancy, and submit shop drawings of any changes he proposes to make, in quadruplicate for approval, before starting the work. Contractor shall install all equipment in a manner to avoid building interference.

#### 1.3 SHOP DRAWINGS:

- A. The Contractor shall not purchase any materials or equipment prior to receipt of approved shop drawings.
- B. Prior to assembling or installing the work, prepare and submit shop drawings for the following items of equipment:
  - 1. Circuit breakers
  - 2. Electrical distribution system
  - 3. Wiring Devices



- C. All submittals shall include adequate descriptive literature, catalog cuts, shop drawings and other data necessary for the Engineer to ascertain that the proposed equipment and materials comply with specification requirements.
- D. Shop drawing sets shall be suitably bound and indexed. Loose sheets are not acceptable.
- E. Catalog cuts submitted for approval shall be legible and shall clearly identify equipment being submitted. Items of the submittal **that have been "faxed" are not** acceptable.
- F. Before preparing drawings, Contractor shall consult all contract drawings and specifications in detail, obtain manufacturer's recommended installation instructions, and have shop drawings prepared based on specific equipment and material intended for installation. A principal of the contracting firm shall sign all shop drawings (indicating conformance with plans and specifications) before submission
- G. Approval on shop drawings or schedules shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless he has in writing (and in letter form) called attention to such deviations at the time of submission and secured written approval; nor shall it relieve him from responsibility for errors in shop drawings or schedules.
- H. Submittals for individual systems and equipment assemblies which consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered for approval.

1.4 AS-BUILT DRAWINGS:

- A. The Contractor shall keep a record set of drawings on the job and, as construction progresses, shall show the actual installed location of all items, material, and equipment on these job drawings.
- B. At the time of final inspection, and electronic (PDF) corrected set of drawings shall be delivered to the Engineer. All drawings costs to be by the Contractor.

1.5 OWNER'S MANUAL:

- A. The Contractor shall submit to the Engineer six identical manuals that contain manufacturer's brochures of all items installed by the Electrical Contractor.
- B. The cover of the manual shall state the following information:
  - 1. Project Name
  - 2. Location
  - 3. Owner
  - 4. Electrical Engineer
  - 5. Electrical Contractor (name, address, phone number)
  - 6. General Contractor

7. Project Supervisors (general and electrical)

8. Date Of Project Completion

1.6 OPERATING AND MAINTENANCE INSTRUCTIONS:

- A. After all final tests and adjustments have been completed, a competent employee of the Contractor shall be provided to instruct the Owner's Representative in all details of operation and maintenance for equipment installed. Supply qualified personnel to operate equipment for sufficient length of time to assure that Owner's Representative is qualified to take over operation and maintenance procedures. Instruction periods shall be as designated by the Owner and shall not necessarily be consecutive.

1.7 MAINTENANCE MATERIALS:

- A. All special tools for proper operation and maintenance of the equipment provided under this Specification shall be delivered to the Owner's Representative and a receipt requested for same.
- B. Where specified, provide Owner's Representative with spare parts, equipment and materials and request a receipt for same.

PART 2 - PRODUCTS

2.1 EQUIPMENT IDENTIFICATION:

- A. In addition to the requirements of the National Electrical Code, install an identification sign which will clearly indicate information required for use and maintenance of items such as panelboards, cabinets, motor controllers (starters), safety switches, separately enclosed circuit breakers, individual breakers and controllers in switchgear and motor control assemblies, control devices and other significant equipment.
- B. Nameplates shall be laminated black phenolic resin with a white core and engraved lettering, a minimum of 1/4-inch high. Nameplates that are furnished by manufacturer, as a standard catalog item, or where other methods of identification is herein specified, are exceptions.

2.2 UNDERGROUND WARNING TAPE:

- A. Furnish and install a six (6) inch wide polyethylene tape, permanently colored yellow, for all electric underground work (outside the building) with wording indicating type of service and "caution". Install twelve (12) inches below finished grade and directly above underground equipment.

### PART 3 - EXECUTION

#### 3.1 SURFACE CONDITIONS:

- A. Inspection:
  - 1. Prior to any Work, the Contractor shall carefully inspect the installed Work of all other Trades and verify that all such Work is complete to the point where his installation may properly commence.
  - 2. Verify that all equipment may be installed in accordance with all pertinent codes and regulations, the original design, and the referenced standards.
- B. Discrepancies:
  - 1. In the event of discrepancy, immediately notify the Engineer.
  - 2. Do not proceed with installation in areas of discrepancy until such discrepancies have been fully resolved.
- C. Return to original (pre-construction) condition any paved areas, sidewalks, planting, etc., disturbed during electrical system installation.

#### 3.2 INSTALLATION:

- A. Install all equipment in strict accordance with the manufacturer's recommendations and the shop drawings approved by the Engineer.
- B. Secure equipment using fasteners suitable for the use, materials, and loads encountered. If requested, submit evidence proving suitability. Do not attach electrical materials to roof decking, removable or knockout panels, or temporary walls and partitions, unless indicated otherwise.
- C. Coordinated electrical systems, equipment and materials complete with auxiliaries and accessories shall be installed. Remove, modify, relocate and reinstall the existing electrical equipment and materials as shown.
- D. Equipment location: Shall be as close as practicable to locations shown on drawings.
- E. Working spaces shall be not less than specified in the National Electrical Code for all voltages specified.
- F. Inaccessible Equipment:
  - 1. Where the Engineer determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, equipment shall be removed and reinstalled as directed at no additional cost to the Owner.
  - 2. "Conveniently accessible" is defined as being capable of being reached without the use of ladders, or without climbing or crawling under or over obstacles such as motors, pumps, belt guards, transformers, piping, and duct work.

G. Equipment and Materials:

1. New equipment and materials shall be installed unless otherwise specified.
2. Equipment and materials shall be designed to assure satisfactory operation and operating life for environmental conditions where being installed. NEC and other code requirements shall apply to the installation in areas requiring special protection such as explosion-proof, vapor-proof, watertight and weatherproof construction.

3.3 COORDINATION WITH OTHER TRADES:

- A. Coordinate all work of each section with work of other sections to avoid interference. Bidders are cautioned to check their equipment against space available as indicated on drawings, and shall make sure that proposed equipment can be accommodated. If interferences occur, Contractor shall bring them to the attention of Engineer, in writing, prior to signing of contract; or, Contractor shall, at his own expense, provide proper materials, equipment, and labor to correct any damage due to defects in his work caused by such interferences.

3.4 SERVICE CONTINUITY

- A. At all times during the construction of the project, electric service shall be maintained to all portions of the site except with prior written approval of interruptions. Any required interruptions of electric service due to work being performed under this contract shall be scheduled in advance after consultation with the Owner and shall generally occur between the hours of five o'clock p.m. and five o'clock a.m. The Contractor shall be responsible for any material and labor costs, including overtime pay, to meet these requirements as part of the Division 26 scope of work.
- B. At least 14 days prior to the requirement of any interruption of electrical service, the Contractor shall furnish to the Engineer for approval a written plan for the work associated with the outage including a description of the installation and removal of temporary wiring and facilities necessary to be installed.

3.5 WORK PERFORMANCE:

- A. Arrange, phase and perform work to assure electrical service for other buildings at all times. See General Methods of Procedure under Section GENERAL REQUIREMENTS.
- B. New work shall be installed and connected to existing work neatly and carefully. Disturbed or damaged work shall be replaced or repaired to its prior condition.
- C. Coordinate location of equipment and conduit with other trades to minimize interferences.
- D. Cutting of Holes:
1. Holes through concrete and masonry in new and existing structures shall be cut with a diamond core drill or concrete saw. Pneumatic hammer, impact electric, hand or manual hammer type drills shall not be allowed.

- 2. Holes shall be located so as not to affect structural sections such as ribs or beams.
- 3. Holes shall be laid out in advance. The Engineer shall be advised prior to drilling through structural sections, for determination of proper layout.
- E. Where conduits, wireways, busduct, and other electrical raceways pass through fire partitions, fire walls or walls and floors, install a firestop that provides an effective barrier against the spread of fire, smoke and gases. Fire-stop material shall be packed tight, and completely fill clearances between raceways and openings. Installation of fire-stop material shall conform to Section 260503 Cutting, Patching and Repair, Firestopping.
- F. Hangers and other supports shall support only electrical equipment and materials. Provide not less than a safety factor of 5, which shall conform with any specific requirements as shown on the drawings or in the specifications.
- G. In security areas, exposed equipment and materials, including screws and other fasteners, shall be tamperproof. Cover plates shall have beveled edges.
- H. Exposed conduit shall be painted, see Section 09900 PAINTING. Fire alarm junction boxes, pull boxes, and wireways, exposed or concealed, shall be painted red.

3.6 PROTECTION AND CLEANING OF SYSTEMS AND EQUIPMENT:

- A. Protect all materials and equipment from damage during storage at the Site and throughout the construction period. Equipment and materials shall be protected during shipment and storage against physical damage, dirt, moisture, cold and rain.
- B. Damage from rain, dirt, sun and ground water shall be prevented by storing the equipment on elevated supports and covering them on all sides with securely fastened protective rigid or flexible waterproof coverings.
- C. Conduit shall be protected by storing it on elevated supports and capping the ends with suitable closure material to prevent dirt accumulation in the piping.
- D. During construction cap the top of all conduits and raceway installed vertically.
- E. During installation, equipment, controls, controllers, circuit protective devices, etc., shall be protected against entry of foreign matter on the inside; and be vacuum cleaned both inside and outside before testing, operating and painting.
- F. Damaged equipment shall be placed in first class operating condition or be returned to source of supply for repair or replacement.
- G. Painted surfaces shall be protected with removable heavy kraft paper, sheet vinyl or equal, installed at the factory, and removed prior to final inspection.
- H. Damaged paint on equipment and materials shall be repainted with painting equipment and finished with same quality of paint and workmanship as used by manufacturer so repaired areas are not obvious.

3.7 DISPOSITION OF EXISTING MATERIAL AND EQUIPMENT:

- A. All material and equipment which is noted, specified, or required by the Owner to be salvaged and which is not scheduled to be reused or relocated shall be carefully removed and shall be delivered to the Owner and stored where directed on the site.
- B. Carefully remove and store on the site all material and equipment noted or specified to be reused or relocated. Thoroughly clean this equipment prior to installation.
- C. Remove all other materials or debris resulting from demolition operations from the site.

3.8 EXCAVATING, TRENCHING, BACKFILLING AND RESURFACING:

- A. Perform work as required, indicated, and in compliance with site work. All excavation depths indicated are below finished grade.
- B. Do not excavate below required depth except as necessary for removal of unstable soil. Unless indicated otherwise, pitch all electrical conduit runs downward away from buildings.
- C. Where backfill compaction is critical (e.g. under floor slabs, roadways, sidewalks, trenches deeper than four feet), test the degree of compaction each 75 linear feet of trench and each two feet of depth. Test as required by Division - "Sitework" and compact backfill until density is acceptable.
- D. Repair the excavated area to original pre-excavation condition. Repair and replace sidewalks, roadways, etc.

3.9 IDENTIFICATION:

- A. Upper case letters of uniform height; centered on device, coverplate, or enclosure; engraved letters filled with a contrasting color; and all characters made clearly and distinctly.
- B. Use abbreviations defined in the contract documents whenever possible. Use plan designations for labeling, unless indicated otherwise. Indicate loads served using designations from electrical schedules and designations from the trade furnishing the equipment served.
- C. Label the following with marking pen.
  - 1. Junction boxes or portions of junction boxes with 277 or 480 volt wiring; communications system pull and junction boxes; and pull, junction boxes, and raceway installed above ceilings and for future use. Label inside covers in exterior locations and outside covers in unfinished areas.
- D. Label feeder conductors and control conductors with self adhesive, numbered labeling tapes; Brady Co. or equal. Indicate feeder numbers on feeders and terminal numbers for control conductors. Label conductors at origin and destination points and at all junction boxes where two or more feeder or control circuits are present.

3.10 ACCESS TO EQUIPMENT:

- A. All equipment shall be installed in location and manner that will allow for convenient access for maintenance and inspection.

3.11 CONNECTION OF EQUIPMENT FURNISHED AND INSTALLED UNDER OTHER DIVISIONS OF THE WORK:

- A. This Contractor shall rough-in and make final electrical connection to all pieces of equipment requiring electrical connections. Such equipment being furnished and installed under other Divisions of the Work.
- B. Installations shall be functional and code complying.
- C. This Contractor shall provide whatever incidental devices are necessary for final connection, such as, but not necessarily limited to outlet boxes, receptacles, connectors, clamps and switches.

3.12 GENERAL COMPLETION AND DEMONSTRATION:

- A. Results expected:
  - 1. All systems shall be complete and operational, and all controls shall be set and calibrated.
  - 2. All testing, start-up and cleaning work shall be complete.
- B. Demonstration:
  - 1. Upon notification by the Contractors, the Engineer will visit the project for a demonstration of the building system and an inspection of the completed work.
  - 2. Items which do not comply with the Contract Documents or which function incorrectly will be listed, and the list will be submitted by the Engineer to the Contractors for repairs.
  - 3. After all corrections have been made the Contractors shall notify the Engineer who will recheck the systems for compliance of all items listed.

3.13 COORDINATION WITH COMMISSIONING AGENT:

- A. Contractor shall coordinate their work with the Owner's Commissioning Agent. Provide all necessary labor, materials, test equipment, etc. Attend all meetings with the Commissioning Agent and participate in the development and implementation of the Commissioning Plan.
- B. Perform all necessary corrective work to comply with deficiencies noted by the Commissioning Agent.

3.14 CLEANING:

- A. Periodically during construction and prior to Owner acceptance of the building, Contractor shall remove from the premises and dispose of all packing material and debris.
- B. Clear away all debris and surplus material resulting from electrical work. Remove all dust and debris from interiors and exteriors of electrical equipment. Clean accessible current carrying elements prior to being energized.

END OF SECTION



## SECTION 26 0502 - ELECTRICAL DEMOLITION

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. This section describes the electrical demolition work to be done to existing facilities.
- B. The term demolition, as used in this specification, shall mean any and all removal of electrical equipment as shown on the demolition plans or as described herein.

#### 1.2 RELATED WORK/SECTIONS:

- A. In addition to this section, refer to other specification sections and drawings to ascertain the extent of work included. This shall include, but not be limited to, the following:
  - 1. Division 1.
  - 2. All other Division 26000 sections.

#### 1.3 WORK INCLUDED:

- A. The work under this section consists of furnishing equipment, performing labor and services necessary for the demolition and removal of the electrical system shown on the drawings and hereinafter noted.

#### 1.4 AS-BUILT DRAWINGS:

- A. Where existing raceways and outlet boxes are used in the renovation work, they shall be shown on the "As-Built Drawings".

#### 1.5 SALVAGED MATERIALS:

- A. The Owner shall have priority for the selection of salvaged material and equipment. Any equipment and material selected to remain the property of the Owner shall be removed and delivered to a location on the site as designated by the Owner. Material and equipment not retained by the Owner shall become the property of the Contractor and shall be removed from the site by him.

### PART 2 - PRODUCTS

NOT APPLICABLE

### PART 3 - EXECUTION

#### 3.1 EXAMINATION:

- A. Verify field measurements and circuiting arrangements prior to commencement of work.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.

- C. Demolition drawings are based on casual field observation and existing record documents. Report discrepancies to Architect/Engineer before disturbing existing installation.

3.2 PREPARATION:

- A. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.
- B. Coordinate electrical service outages with Owner.
- C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- D. Reconnect existing circuits and services interrupted by demolition.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK:

- A. Remove abandoned wiring to source of supply.
- B. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces and fire stop opening.
- C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned backboxes which are not removed.
- D. Replace/rework/extend existing Fire Alarm circuits as required to accommodate the new devices shown on the drawing. Schedule disruptions to the existing Fire Alarm system with the Owner in advance of disruptions.
- E. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
- F. Repair adjacent construction and finishes damaged during demolition and extension work.

END OF SECTION

## SECTION 26 0503 - CUTTING, PATCHING & REPAIR

### PART 1 - GENERAL REQUIREMENTS

#### 1.1 SCOPE OF WORK:

- A. Cutting: Furnish all labor, materials, tools and equipment and perform all operations in connection with the cutting of new and existing building structure, finishes and building assemblies as specified hereinafter.
- B. Patching: Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of watertight sealant as required to seal voids or gaps around Division 26 equipment at penetrations through exterior floors, walls, and roof systems.
- C. Repair: Furnish all labor, materials, tools and equipment required to repair all existing or new building components and finishes, outside components, landscaping, utilities, or other appurtenances that are damaged as a result of the performance of this contract.
- D. Where existing feeders and branch circuits are designated for reconnection to new utilization equipment, final connections for such feeders and circuits shall performed as required to maintain the same functions as existed prior to new work.

#### 1.2 RELATED WORK/SECTIONS:

- A. In addition to this section, the Contractor shall refer to other specification sections and drawings to ascertain the extent of work included. This shall include but not be limited to, the following:
  - 1. Division 1
  - 2. All other Division 26 sections

#### 1.3 QUALITY ASSURANCE:

- A. Sealants shall equal or exceed all requirements of ASTM E-814.
- B. All applicable codes as stated elsewhere in these specifications for the type of work performed.

#### 1.4 SUBMITTALS:

- A. Submit catalog cuts, descriptive literature and manufacturers fire stop penetration details for approval in accordance with Section 26 0500, ELECTRICAL GENERAL REQUIREMENTS.
- B. The specific item proposed and its area of application shall be marked on the catalog cuts.

## PART 2 - PRODUCTS

### 2.1 WATERPROOFING:

- A. Sealant materials shall be as follows:
  - 1. Penetrations in Fire Rated assemblies shall meet the requirements of 2.1 FIRESTOPPING specified hereinbefore.
  - 2. Exterior joint sealant shall be Polyurethane base, multi-component; self-leveling type for application in vertical joints; capable of withstanding
  - 3. Movement of up to 50% of joint width and satisfactorily handled throughout temperature of 4 to 27 degrees C.; uniform, homogeneous, and free from lumps, skins and coarse particles when mixed; Shore "A" hardness of minimum 15 and maximum 50; non-staining; non-bleeding; colors selected by Architect/Engineer.
- B. The following waterproofing sealant manufacturers are acceptable:
  - 1. TREMCO
  - 2. Sonneborn - Contech
  - 3. W. R. Meadows
  - 4. Hilti

## PART 3 - EXECUTION

### 3.1 GENERAL:

- A. Patch and repair all building finishes, structural components, or other appurtenances that are damaged as a result of the performance of this contract. Patch and repair work shall include finishes, components, substructure and materials required for the installation of such work in accordance with standard practices.
- B. Replace all building components, outside components, shrubbery, or other appurtenances which are damaged beyond repair. Replacement item(s) shall be of equal or higher quality than the original item(s).
- C. All penetrations thru exterior floors, walls, and roof systems shall be sealed watertight.
- D. All roof penetrations shall be patched in accordance with roofing manufacturers' recommendations.
- E. Patched and repaired work shall be finished to match existing or adjacent construction and conditions.

### 3.2 INSTALLATION OF SEALANT MATERIALS:

- A. Install materials in accordance with manufacturer's recommendations for installation of these materials.

- B. Clean and prepare joints for sealant application in accordance with manufacturer's recommendations. Ensure that joint forming materials are compatible with sealant. Use joint filler to achieve required joint depths. Apply primers as recommended by sealant manufacturer.
- C. Openings larger than required for proper installation of electrical raceways or conduits shall be patched or repaired.

END OF SECTION 26 0503

SECTION 26 0519 - WIRE AND CABLE - BUILDING WIRE (600 VOLTS AND BELOW)

PART 1 - GENERAL

1.1 SCOPE:

- A. This section includes the furnishing, installation, and connection of the building wire for power and lighting circuits.
- B. Unless otherwise specified in other sections of these specifications, control wiring shall be provided, installed, and connected to perform the functions specified in other sections of these specifications.
- C. Unless otherwise specified in other sections of these specifications, communication and signal wiring shall be provided, installed, and connected to perform the function specified in other sections of these specifications.

1.2 RELATED WORK/SECTIONS:

- A. In addition to this section, the Contractor shall refer to other specification sections and drawings to ascertain the extent of work included. This shall include, but not be limited to, the following:
  - 1. Division 1
  - 2. All other Division 26000 sections

1.3 WORK INCLUDED:

- A. The work under this section consists of furnishing materials and equipment, performing labor and services necessary for the installation of the electrical cable and wiring system shown on the drawings and hereinafter specified.

1.4 APPLICABLE PUBLICATIONS:

- A. The following specifications and standards, except as hereinafter modified, are incorporated herein by reference and form a part of this specification to the extent indicated by the references thereto. Except where a specific date is given, the issue in effect (including amendments, addenda, revisions, supplements, and errata) on the date of Invitation for Bids shall be applicable. In text such specifications and standards are referred to by basic designation only.
  - 1. National Fire Protection Association (NFPA) Publications
    - No. 70 . . . . .National Electrical Code (NEC)
  - 2. Underwriters' Laboratories, Inc. (UL) Publications:
    - No. 44 . . . . .Rubber-Insulated Wire and Cables

No. 83 . . . . .Thermoplastic-Insulated Wires

No 493 . . . . .Thermoplastic-Insulated Underground Feeder and Branch Circuit Cables

No. 486. . . . .Wire Connectors and Soldering Lugs

## PART 2 - PRODUCTS

### 2.1 MATERIALS:

#### A. Building Wire (Power and Lighting):

1. Cable and wire shall be in accordance with UL, NEC, as shown on the drawings, and as hereinafter specified.
2. Conductors:
  - a. Shall be annealed copper.
  - b. Shall be stranded for sizes No. 8 and larger. Sizes No. 10, and smaller shall be solid.
  - c. Size shall be not less than shown on the drawings. Minimum size shall be No. 12 AWG.
3. Insulation: Unless otherwise shown on the drawings, insulation shall be as follows:
  - a. THWN - Dry Locations.
  - b. THHN - Dry, Damp Locations.
  - c. XHHW - Dry, Damp, Wet Locations.
4. Color Code:
  - a. All secondary service, feeder, and branch circuit conductors shall be color coded as follows:

<u>208/120 Volt</u>	<u>Phase</u>	<u>480/277 Volt</u>
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray

- b. All No. 12 and No. 10 branch circuit conductors shall have solid color compound or solid color coating.
  - c. No. 8 AWG and larger phase conductors shall have either:
    - 1) Solid color compound or solid color coating.
    - 2) Stripes, bands, or hash marks of colors specified above.
    - 3) Colored pressure-sensitive plastic tape. Tape shall be applied in half overlapping turns for a minimum of three inches for all terminal points, and in all junction boxes, pull boxes, troughs, manholes, and handholes. Tape shall be 3/4-inch wide with colors as specified above. The last two laps of tape shall be applied with no tension to prevent possible unwinding. Where cable markings are covered by tape, apply tags to cable stating size and insulation type.
  - d. The neutral conductor shall have a colored strip matching the phase conductor color it is paired with where dedicated neutral conductors for single phase circuits are shown.
  - e. For modifications and additions to existing wiring systems, color coding shall conform to the existing wiring system.
- B. Splices and Joints:
  - 1. Shall be in accordance with UL and NEC.
  - 2. Branch circuits (No. 10 AWG and smaller):
    - a. Connectors shall be solderless, screw-on, pressure cable type, 600 volt, 105 degree C, with integral insulation. They shall be approved for copper conductors, and shall be reusable.
    - b. The integral insulator shall have a skirt to completely cover the stripped wires.
    - c. The number, size, and combination of conductors as listed on the manufacturers packaging shall be strictly complied with.
  - 3. Feeder Circuits:
    - a. Connectors shall be indent, hex screw, or bolt clamp-type. Material shall be high conductivity and corrosion-resistant.
    - b. Connectors for cable sizes 250 MCM and larger shall have not less than two compression indents.
    - c. Splices and joints shall be insulated with materials approved for the particular use, location, voltage, and temperature. Insulation shall be not less than that of the conductors being joined.



- d. Plastic electrical insulating tape:
  - 1) Tape shall be flame retardant, cold and weather resistant.
- C. Fire Alarm Wiring: See Specification Section 28 3111
- D. Wire Lubricating Compound shall be suitable for the wire insulation and conduit it is used with, and shall not harden or become adhesive.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION:

- A. Installation shall be in accordance with the NEC, as shown on the drawings, and as hereinafter specified.
- B. All wiring shall be installed in raceway systems, except where direct burial is shown on the drawings.
- C. Cables and wires shall be spliced only in outlet boxes, junction boxes, pull boxes, manholes, or handholes.
- D. Cable supports shall be installed for all vertical feeders in accordance with the NEC. They shall be of the split wedge type which firmly clamps each individual cable and tightens due to cable weight.
- E. For panelboards, cabinets, wireways, switches, and equipment assemblies, neatly form, train, and tie the cables in individual circuits.
- F. Cable and wire entering a building from underground shall be sealed between the wire and conduit, where the cable exits the conduit, with a nonhardening approved compound.
- G. Wire Pulling:
  - 1. Suitable installation equipment shall be provided to prevent cutting or abrasion of conduits during pulling of feeders.
  - 2. Ropes used for pulling feeders shall be made of suitable nonmetallic material.
  - 3. Pulling lines for feeders shall be attached by means of either woven basket grips or pulling eyes attached directly to the conductors.
  - 4. All cables to be pulled in a single conduit shall be pulled in together.

#### 3.2 FIELD TESTING:

- A. Feeders and branch circuits shall have their insulation tested after installation and before connection to utilization devices such as fixtures, motors, or appliances.
- B. Test shall be performed by megger and conductors shall test free from short-circuits, grounds, and opens.

- C. Conductors shall be tested phase-to-phase and phase-to-ground.
- D. Record test results and include report within the OWNER'S MANUAL.

END OF SECTION

## SECTION 26 0526 - GROUNDING

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

- A. This section includes the furnishing, installation, and connection of conduit, fittings, and boxes to form complete, coordinated, grounding systems.
- B. The term ground, as used in this specification, shall mean any or all of the grounding types specified.

#### 1.2 RELATED WORK/SECTIONS:

- A. In addition to this section, the Contractor shall refer to other specification sections and drawings to ascertain the extent of work included. This shall include, but not be limited to, the following:
  - 1. Division 1
  - 2. All other Division 26 sections

#### 1.3 QUALITY ASSURANCE:

- A. NEC Compliance: Comply with NEC requirements as applicable to materials and installation of electrical grounding systems, associated equipment and wiring. Provide grounding products which are UL listed and labeled.
- B. UL Compliance: Comply with applicable requirements of UL Standards Nos. 467 and 869 pertaining to electrical grounding and bonding.
- C. IEEE Compliance: Comply with applicable requirements of IEEE Standard 142 and 241 pertaining to electrical grounding.

### PART 2 - PRODUCTION

#### 2.1 GENERAL:

- A. Provide electrical grounding systems with assembly of materials, including cables/wires, connectors, terminals, solderless lugs, grounding rod/electrodes, bonding jumper braid and additional accessories needed for complete installation. Where materials or components are not indicated, provide products complying with NEC, UL, IEEE and established industry standards.

#### 2.2 GROUNDING CONDUCTORS:

- A. Shall be UL and NEC approved types, copper, with insulation color identified green, except where otherwise shown on the drawings, or specified.
- B. Wire size shall not be less than #12 AWG and not less than required by the NEC.

PART 3 - EXECUTION

3.1 INSTALLATION OF ELECTRICAL GROUNDING:

- A. General: Install electrical grounding systems in accordance with applicable portions of NEC, with NECA's "Standard of Installation," and in accordance with recognized industry practices to ensure that products comply with requirements and serve intended functions.
- B. Coordinate with other electrical work as necessary to interface installation of electrical grounding system with other work.

3.2 FEEDERS AND BRANCH CIRCUITS:

- A. Install green insulated equipment grounding conductors with all feeders and branch circuits. Conductors shall be sized in accordance with NEC Article 250.

3.3 EQUIPMENT GROUNDS:

- A. All equipment that has electrical connections (lights, receptacles, panels, and utilization equipment) shall have a ground wire connected that is directly tied to the ground bus of the panel which serves it.
- B. Fixed electrical appliances and equipment shall have a ground lug installed and provided by this contractor for termination of the green ground conductor.

END OF SECTION 26 0526

## SECTION 26 0533 - METALLIC CONDUITS/RACEWAYS AND FITTINGS

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. This section includes the furnishing, installation, and connection of conduit, fittings, and boxes to form complete, coordinated, grounded raceway systems.
- B. Types of raceways in this section include the following:
  - 1. Galvanized rigid metal conduit (GRC).
  - 2. Intermediate metal conduit (IMC).
  - 3. Electrical metallic tubing (EMT).
  - 4. Flexible metal conduit.
  - 5. Liquidtight flexible metal conduit.
- C. The term conduit, as used in this specification, shall mean any or all of the raceway types specified.

#### 1.2 RELATED WORK/SECTIONS:

- A. In addition to this section, the Contractor shall refer to other specification sections and drawings to ascertain the extent of work included. This shall include, but not be limited to, the following:
  - 1. Division 1.
  - 2. All other Division 26000 sections.

#### 1.3 QUALITY ASSURANCE:

- A. NEMA Compliance: Comply with applicable requirements of NEMA standards pertaining to raceways.
- B. UL Compliance and Labeling: Comply with provisions of UL safety standards pertaining to raceways systems; and, provide products and components which have been UL listed and labeled.
- C. NEC Compliance: Comply with requirements as applicable to construction and installation of raceway systems.

## PART 2 - PRODUCTS

### 2.1 RIGID STEEL CONDUIT (GRC):

- A. Metal rigid steel conduit shall conform to ANSI C80.1 and Underwriter's Laboratories UL-6 specification, ANSI C80.1.
- B. Conduit shall be hot-dipped galvanized to provide a corrosion resistant coating.
- C. Fittings: Fittings shall be ANSI/NEMA FB 1 threaded type, hot dipped or electronic plated. Threaded conduit to be secured to boxes, cabinets, etc., by means of galvanized threaded bushings on the inside and bond-type locknuts on the inside and outside of such boxes and cabinets. Fittings shall be watertight and the same material as conduit installed with factory manufactured elbows.

### 2.2 RIGID INTERMEDIATE STEEL CONDUIT (IMC):

- A. Intermediate Metallic Conduit shall conform to ANSI C80.1 and proposed Underwriter's Laboratories UL 1242 specification.
- B. Conduit shall be hot-dipped galvanized to provide a corrosion resistant coating. Intermediate Metallic Conduit (IMC) shall have galvanized/metallized thread protection, and pipe interior shall be protected by corrosion inhibiting coating.
- C. Fittings: Shall be similar to GRC.
- D. Maximum allowable size shall be (4) inches.

### 2.3 ELECTRICAL METALLIC TUBING (EMT):

- A. Electrical metallic tubing shall conform to ANSI C80.3 and Underwriter's Laboratories UL 797.
- B. EMT shall be hot-dipped galvanized steel with internal coating of silicone epoxy lubricant to assist in wire pulling.
- C. Fittings: Shall be compression type, steel or malleable iron. Set screw or indentation type of fittings are not acceptable.

### 2.4 FLEXIBLE METAL CONDUIT:

- A. Flexible metal conduit shall conform to UL 1.
- B. Flexible conduit to be of hot-dipped galvanized interlocked spirally wound steel strip.
- C. Fittings shall be multiple point type, threading into the internal wall of the conduit convolutions, and shall have insulated throat. Connectors to be galvanized and be suitable for connection to associated boxes and conduits.

### 2.5 LIQUID TIGHT FLEXIBLE METAL CONDUIT:

- A. Liquid-tight flexible metal conduit shall conform to UL 360.

- B. Liquid-tight flexible metal conduit shall consist of flexible galvanized steel tubing over which is extruded a liquid-tight jacket of polyvinyl chloride (PVC). Conduit shall be provided with a continuous copper bonding conductor wound spirally between the convolutions.
- C. Fittings used shall be reusable type of malleable iron/steel construction, electro zinc plated inside and outside, furnished with nylon insulated throat and taper threaded hub. Connectors to be galvanized and be suitable for connection to associated boxes and conduits.

2.6 EXPANSION AND DEFLECTION COUPLINGS:

- A. UL 467 and UL 514 shall apply.
- B. Shall accommodate, 1.9 cm (0.75 inch) deflection, expansion, or contraction in any direction, and shall allow 30 degree angular deflections.
- C. Shall include internal flexible metal braid sized to guarantee conduit ground continuity and fault currents in accordance with UL 467, and the NEC code tables for ground conductors.
- D. Shall be watertight, seismically qualified, corrosion-resistant, threaded for and compatible with rigid or intermediate metal conduit.
- E. Jacket shall be flexible, corrosion-resistant, watertight, moisture and heat resistant molded rubber material with stainless steel jacket clamps.

2.7 CONDUIT SUPPORTS:

- A. All parts and hardware shall be zinc-coated or have equivalent corrosion protection.
- B. Pipe straps: Fed. Spec. FF-S-760, type 1, style A or B.
- C. Individual conduit hangers: Shall be designed for the purpose, and have pre-assembled closure bolt and nut, and provisions for receiving hanger rod.
- D. Multiple conduit (trapeze) hangers shall be not less than 1-1/2 x 1-1/2 inch, 12 gage steel, cold formed, lipped channels. Hanger rods shall be not less than 3/8 inch diameter steel.
- E. Solid masonry and concrete anchors: Fed. Spec. FF-S-325 shall apply. Anchors shall be GROUP III self-drilling expansion shields, or machine bolt expansion anchors GROUP II type 2 or 4, or GROUP VII.

PART 3 - EXECUTION

3.1 CONDUIT INSTALLATION SCHEDULE:

- A. Power distribution feeders such as feeders for switchboards, panelboard, transformers, etc.:
  - 1. Above Grade - GRC or IMC

2. Underground - S40 (PVC) (with green insulated grounding conductor sized in accordance with NEC 250-102).
- B. Motor feeders: Same requirements as power distribution feeders.
- C. Branch circuits from panelboards (not described above):
  1. Exposed to weather - GRC or IMC
  2. Concealed dry interior location - EMT.
  3. Exposed dry interior locations - GRC IMC within 8 ft. of finished floor, EMT above 8 ft.
  4. Underground - S40 (PVC).
- D. Fire alarm system conduits: Same requirements as branch circuits.

### 3.2 CONDUIT INSTALLATION - GENERAL:

- A. Installation shall be in accordance with UL, NEC, as shown on the drawings, and as hereinafter specified.
- B. Contractor shall lay out and install conduit runs to avoid proximity to hot pipes. In no case will a conduit be run within three inches of such pipes, except where crossings are unavoidable and then conduit shall be kept at least one inch from the covering on pipe crossed.
- C. Conduits shall be supported as required to comply with applicable paragraphs of the NEC.
- D. Conduit installation shall be as follows:
  1. Installed as complete runs before pulling in cables or wires.
  2. Flattened, dented, crushed or deformed conduit is not permitted and shall be removed and replaced at no cost to the Owner.
  3. Installed so they will not obstruct head room, walkways, doorways or work by other trades.
  4. Cut square with a hacksaw, reamed, burrs removed, and drawn up tight.
  5. Mechanically and electrically continuous.
  6. Supported within one foot of all changes of direction, and within one foot of each enclosure to which connected.
  7. Ends of empty conduit to be closed with plugs or caps at rough-in stage to prevent entry of debris until wires are pulled in.



8. Conduits shall be secured to cabinets, junction boxes, pull boxes, and outlet boxes by bonding type locknuts.
  9. Underground conduit runs shall be installed a minimum of 24" below finished grade (lower as required to avoid conflicts with encroaching underground utilities).
- E. Conduit Bends:
1. Shall be made with standard conduit bending machines.
  2. Conduit hickey may be used for slight offsets, and for straightening stubbed out conduits.
  3. Conduits shall not be bent with a pipe tee or vice.
- F. Conduit shall be securely fastened in place at intervals as specified by the code using suitable straps, hangers and other supporting assemblies. All strap hangers and supporting assemblies:
1. Shall be of rugged construction capable of supporting weight with a reasonable factor of safety.
  2. Shall be adequately protected against corrosion.
- G. In wet locations or in locations where corrosive conditions are present, vertical and horizontal runs of conduit shall be firmly supported so that there is at least 1/4" air space between the conduit and the wall or supporting surface. Spacers and supporting straps shall be of malleable iron construction, hot dipped galvanized.
- H. EMT shall be securely fastened in place at intervals as specified by the code using straps, hangers and other supporting assemblies.
1. Spacers and supporting straps shall be of rugged malleable iron or steel construction hot dipped galvanized.
- I. Flexible conduit when installed shall have sufficient slack to avoid sharp flexing and straining due to vibration and thermal expansion/contraction. Conduit shall be installed in such a manner that liquids will tend to run off the surface instead of draining towards the fittings.
- J. Concealed work installation:
1. In concrete:
    - a. Conduit shall be run in direct lines.
    - b. Conduit shall not be installed through concrete beams, except where shown on the structural drawings or as approved by the Engineer prior to construction, and after submittal of drawing showing locations size, and position of each penetration.

- c. Conduit shall not be installed in concrete which is less than three inches thick.
  - d. Conduit outside diameter larger than 1/3 of the concrete thickness is not permitted.
  - e. Spacing between conduits in slab shall be approximately six conduit diameters apart except one conduit diameter at conduit crossings.
  - f. Conduits shall be installed approximately at the center of the slab.
  - g. Couplings and connections shall be water tight. Thread compounds shall be UL approved conductive type to ensure low resistance ground continuity through the conduits.
- 2. Conduit shall be run parallel or perpendicular to the building lines.
  - 3. Branch circuit conduits shall not be supported by the suspended ceiling, lighting fixtures, or air conditioning ducts.
  - 4. Conduit shall be run parallel or perpendicular to the building lines.
  - 5. Horizontal runs shall be installed close to the ceiling or beams and secured with approved conduit straps.
  - 6. Horizontal or vertical runs shall be supported at not over eight foot intervals.

### 3.3 UNDERGROUND INSTALLATION:

- A. Tops of conduits shall be:
  - 1. Not less than 24 inches and not less than shown on the drawings below finished grade.
  - 2. Not less than 30 inches and not less than shown on the drawings below road and other paved surfaces.
  - 3. Shall not be installed above power company direct burial primary feeder.
- B. Work with extreme care near existing ducts, conduits, cables, and other utilities to avoid damaging them.
- C. For excavation and back-filling, see Section 260501 ELECTRICAL COORDINATION.
- D. Seal conduits, including spare conduits, at building entrances and at outdoor terminations for equipment with a suitable compound to prevent the entrance of moisture and gases.

### 3.4 MOTORS AND VIBRATING EQUIPMENT:

- A. Flexible metal conduit shall be used for connections to motors and other electrical equipment subject to movement, vibration, misalignment, cramped quarters, or noise transmission. Flexible metal conduit shall be liquid-tight when installed in exterior

locations, moisture or humidity laden atmosphere, corrosive atmosphere, water or spray wash-down operations, and locations subject to seepage or dripping of oil, grease or water. Flexible metal conduit shall be installed with green ground wire.

3.5 EXPANSION JOINTS:

- A. Conduits 3 inches and larger, rigidly secured to building construction on opposite sides of a building expansion joint, shall be provided with expansion and deflection couplings. The couplings shall be installed in accordance with the manufacturer's recommendations.
- B. Conduits smaller than 3 inches shall be provided with junction boxes on both sides of the expansion joint, and connected by 15 inches of slack flexible conduit. Flexible conduit shall have a copper green ground bonding jumper installed. In lieu of this flexible conduit, expansion and deflection couplings as specified above may be installed.
- C. Expansion and deflection couplings shall also be installed where shown on the drawings.

3.6 CONDUIT SUPPORTS, INSTALLATION:

- A. Safe working load shall not exceed 1/4 of proof test load of fastening devices.
- B. Pipe straps or individual conduit hangers shall be used for supporting individual conduits.
- C. Multiple conduit runs shall be supported by trapeze hangers. Trapeze hangers shall be designed to support a load equal to or greater than the sum of the weights of the conduits, wires, hanger itself, and 200 pounds. Each conduit shall be attached by U-bolt or other approved fastener.
- D. Conduit shall be supported independently of junction boxes, pull boxes, fixtures, suspended ceiling T-bars, angle supports, etc.
- E. Solid Masonry and Concrete: Fasteners shall be as follows:
  - 1. New construction: Generally, steel or malleable iron concrete inserts in concrete prior to pouring.
  - 2. Existing construction:
    - a. Steel expansion anchors not less than 1/4-inch bolt size and not less than 1-1/8 inch embedment.
    - b. Power set fasteners shall be approved, and not less than 1/4-inch diameter with depth of penetration not less than three inches.
    - c. Anchors or fasteners attached to concrete ceilings shall be vibration and shock resistant.
- F. Hollow masonry. Toggle bolts are permitted. Bolts supported only by plaster are not acceptable.
- G. Metal structures. Fasteners shall be machine screw or devices specifically designed and approved for the application.

- H. Attachments by wood plugs, rawl plug, plastic, lead or soft metal anchors, or wood blocking is not permitted.
- I. Chain, wire, or perforated strap shall not be used to support or fasten conduit.
- J. Vertical supports. Vertical conduit runs shall have riser clamps and supports in accordance with the NEC and as shown on the drawings. Supports for cable and wire shall have fittings which include internal wedges and retaining collars.

3.7 FIRE ALARM SYSTEM CONDUIT:

- A. All wiring shall be installed in conduit.
- B. Size all conduit as required per NEC and manufacturers' recommendations for number of wires or cables but minimum size shall be 3/4".
- C. Install junction boxes and pull boxes as required for each system.
- D. Conduit bends shall be long radius.

3.8 PULL WIRES:

- A. Install a nylon pull string in Fire Alarm conduits.

3.9 PAINTING:

- A. Exposed non-fire alarm conduit shall be primed and painted to match existing room finishes (obtain paint chips from the Owner).
- B. Fire Alarm conduit and box covers shall be painted red.

END OF SECTION 26 0533

## SECTION 26 0535 - ELECTRICAL BOXES

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK:

- A. This section includes the furnishing, installation and connection of all outlet boxes, junction boxes, and floor boxes as shown on the drawings or as required to house the intended wiring, devices or equipment.
- B. Types of electrical boxes and fittings specified in this section include the following:
  - 1. Outlet boxes
  - 2. Junction boxes
  - 3. Pull boxes
  - 4. Floor boxes
  - 5. Bushings
  - 6. Locknuts
  - 7. Knockout closures

#### 1.2 RELATED WORK/SECTIONS:

- A. In addition to this section, the Contractor shall refer to other specification sections and drawings to ascertain the extent of work included. This shall include, but not be limited to, the following:
  - 1. Division 1
  - 2. All other Division 26000 sections
- B. Other systems specified in Division 26000 may call for special boxes not covered in section 26 0535.

#### 1.3 QUALITY ASSURANCE:

- A. NEC Compliance: Comply with NEC as applicable to construction and installation of electrical wiring boxes and fittings.
- B. UL Compliance: Comply with applicable requirements of UL 50, UL 514-Series, and UL 886 pertaining to electrical boxes and fittings. Provide electrical boxes and fittings which are UL listed and labeled.
- C. NEMA Compliance: Comply with applicable requirements of NEMA Stds./Pub No.'s OS1, OS2, and Pub 250 pertaining to outlet and device boxes, covers, and box supports.

## PART 2 - PRODUCTS

### 2.1 FABRICATED MATERIALS:

- A. Outlet and Device Boxes (dry interior locations): Provide galvanized coated sheet-steel outlet wiring boxes, of shapes, cubic inch capacities, and sizes, including box depths as required by particular application, suitable for installation at respective locations. Construct outlet boxes with mounting holes, and with conduit size knockout openings in bottom and sides. Provide boxes with threaded screw holes, with corrosion-resistant cover and grounding screws for fastening surface and device type box covers, and for equipment type grounding.
- B. Outlet and Device Box Accessories: Provide outlet box accessories as required for each installation, including box supports, mounting ears and brackets, wallboard hangers, box extension rings, fixture studs and metal straps for supporting outlet boxes, which are compatible with outlet boxes being used to fulfill installation requirements for individual wiring situations.
  - 1. Plaster rings and device mounting rings shall be of proper depth such that the device mounting surface is flush with the finished wall/ceiling surface.
- C. Outlet and Device Boxes (damp and wet locations): Provide corrosion resistant cast metal raintight outlet and wiring device boxes of types, shapes and sizes required for each application, including depth of boxes, with threaded conduit holes for fastening electrical conduit, and cast metal face plates. Where weatherproof devices are indicated, provide spring hinged watertight caps suitable configured for each application, including face plate gaskets and corrosion resistant plugs and fasteners.
- D. Junction and Pull Boxes: Provide galvanized code-gage sheet steel junction and pull boxes, with screw-on covers; of types, shapes and sizes, to suite each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws and washers.
- E. Floor Boxes: Provide cast iron raintight adjustable floor boxes as indicated, with threaded conduit-entrance ends, and vertical adjusting rings, gaskets, brass floor plates with flush screw-on covers with ground flange and stainless steel cover screws.
- F. Bushings, Knockout Closures, and Locknuts: Provide corrosion resistant box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connectors, of types and sizes, to suit respective installation requirements and applications.

## PART 3 - EXECUTION

### 3.1 INSTALLATION OF ELECTRICAL BOXES AND FITTINGS:

- A. General: Install electrical boxes and fittings as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation," and in accordance with recognized industry practices to fulfill project requirements.
- B. Coordinate installation of electrical boxes and fittings with wire/cable, wiring devices, and raceway installation work.

- C. Provide weathertight outlets for interior and exterior locations exposed to weather or moisture.
- D. Provide knockout closures to cap unused knockout holes where blanks have been removed.
- E. Avoid installing boxes back-to-back in walls.
- F. Position recessed outlet boxes accurately to allow for surface finish thickness. Boxes shall be installed such that the device mounting surface is flush with the wall/ceiling finished surface.
- G. Set floor boxes level and flush with finish flooring material. Provide trim flange to match finish floor material.
- H. Fasten electrical boxes firmly and rigidly to substrates, or structural surfaces to which attached, or solidly embed electrical boxes in concrete or masonry.

3.2 GROUNDING:

- A. Upon completion of installation work, properly ground electrical boxes and demonstrate compliance with requirements.

END OF SECTION 26 0535

## SECTION 26 0548 - SEISMIC SUPPORT OF ELECTRICAL EQUIPMENT

### PART 1 - GENERAL REQUIREMENTS

#### 1.1 SCOPE OF WORK:

##### A. General:

1. Furnish all labor, materials, tools and equipment and perform all operations in connection with the installation of seismic support of electrical equipment systems and appurtenances where shown on the drawings and specified hereinafter.

#### 1.2 RELATED WORK/SECTIONS:

- A. In addition to this section, the Contractor shall refer to other specification sections and drawings to ascertain the extent of work included. This shall include, but not be limited to, the following:

1. Division 1
2. All other Division 26 sections
3. All Division 27 and 28 sections

#### 1.3 QUALITY ASSURANCE:

##### A. Codes and Standards:

1. All seismic equipment and design shall comply with all local codes and ordinances and meet or exceed the standards and procedures (latest editions) of the following:
  - a. IBC.

- B. Seismic control equipment shall be sized and provided by manufacturer . Seismic bracing shall be a factory manufactured item listed in the manufacturers catalog for the intended use.

##### C. Manufacturer:

1. The seismic control supports manufacturers shall be as manufactured by one of the following or approved equal:
  - a. Mason Industries
  - b. Amber Booth
  - c. Peabody



1.4 SUBMITTALS:

- A. The manufacturer shall submit drawings including floor plans, sections and elevations showing piping, duct, and equipment. Drawings shall indicate location and type of all components provided.
- B. A schedule shall show capacity and load of each component at each location.
- C. Design shall be based upon actual installation and not contract drawing schematics.
- D. Submittals shall include:
  - 1. Sketches showing seismic loading, location of bracing and types and sizes of bracing assemblies.
  - 2. Submit seismic protection ratings in three principle axes certified by an independent laboratory.
  - 3. Submit calculations for shear, pull-up, primary overturning, and secondary overturning.
  - 4. Submit drawings indicating auxiliary supports and method of attachment.
  - 5. Calculations shall be submitted and signed by a licensed professional engineer.

PART 2 - PRODUCTS

2.1 GENERAL:

- A. All equipment and applicable conduit shall be mounted on or suspended from approved foundations and supports as specified herein and as shown on the drawings.
- B. Steel components shall be phosphated and painted. All nuts, bolts, and washers shall be zinc-electroplated.

2.2 BRACING HANGERS:

- A. Seismic bracing shall be a factory manufactured item listed in the manufacturers catalog for the intended use.
- B. Equipment sway bracing shall be provided for all items supported by off-the-floor structures or structures suspended from floors or roof above.
  - 1. Braces shall consist of angles, rods, bars, or pipes run at 45% angles from the equipment frame to the building structure secured at both ends with bolts 1/2" or larger.
  - 2. Bracing shall be provided in two planes of direction, 90 degrees apart, for each item of equipment.

2.3 ELECTRICAL EQUIPMENT:

- A. Systems include but are not limited to the following:
  - 1. Fire Alarm System Panels.
- B. Electrical conduit of any size suspended by individual hangers of less than 12 inches from top of conduit to the supporting structure do not have to be seismically braced.
- C. Roof Mounted Equipment:
  - 1. Equipment shall be direct anchored.
  - 2. Curbs and equipment supports shall be attached to roof structure.

2.4 SEISMIC ACCESSORIES:

- A. Provide all necessary brackets, bolts, fasteners, predrilled bases, oversized bases, accessory components and materials to install systems in accordance with manufacturer's requirements.

PART 3 - EXECUTION

3.1 GENERAL:

- A. If the equipment to be mounted is not furnished with integral structural frames and external mounting lugs (both of suitable strength and rigidity), approved structural subbase shall be installed in the field which shall support the equipment to be hung and to which shall be attached the hangers.

3.2 SUPERVISION:

- A. The manufacturer, or his qualified representative, shall be responsible for providing such supervision as may be necessary to assure correct installation and adjustment of the isolators. Upon completion of the installation and after the system is put into operation, the manufacturer, or his representative, shall make a final inspection and submit his report to the Engineer in writing certifying the correctness of installation and compliance with approved submittal data.

END OF SECTION 23 0548

## SECTION 26 2726 - WIRING DEVICES

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. This section includes the furnishing, installation, and connection of wiring devices as shown on the plans.
- B. Types of electrical wiring devices in this section include the following:
  - 1. Receptacles
  - 2. Switches
  - 3. Faceplates
  - 4. Motor rated toggle switches

#### 1.2 RELATED WORK/SECTIONS:

- A. In addition to this section, the Contractor shall refer to other specification sections and drawings to ascertain the extent of work included. This shall include, but not be limited to, the following:
  - 1. Division 1.
  - 2. All other Division 26000 sections.
- B. See section on Substitutions.

#### 1.3 QUALITY ASSURANCE:

- A. NEC Compliance: Comply with NEC as applicable to installation and wiring of electrical wiring devices.

#### 1.4 SUBMITTALS:

- A. Submit catalog cuts and descriptive literature for approval in accordance with Section 26 0500, ELECTRICAL GENERAL REQUIREMENTS.
- B. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.
- C. The specific item proposed and its area of application shall be marked on the catalog cuts.

PART 2 - PRODUCTS

2.1 FABRICATED WIRING DEVICES:

- A. General: Provide factory-fabricated wiring devices, in types, colors, and electrical ratings for applications indicated and which comply with NEMA Std. Pub. No. WD 1. Unless noted otherwise device color shall be ivory.
- B. Wiring Devices: Wiring devices shall be as listed in the following table, or approved equal:

<u>Description</u>	<u>Cooper WD</u>	<u>Hubbell</u>	<u>P &amp; S</u>
Single Pole Toggle Switch, 20A 120/277V	2221V	HBL1221-I	PS20AC1-I
Single Pole Keyed Toggle Switch	2221L	HBL1221-L	PS20AC1-IL
Three Way Toggle Switch	2223V	HBL1223-I	PS20AC3-I
Three Way Keyed Toggle Switch	2223L	HBL1223-L	PS20AC3-IL
Four Way Toggle Switch	2224V	HBL1224-I	PS20AC4-I
Four Way Keyed Toggle Switch	2224L	HBL1224-L	PS20AC4-IL
20A 125V 2P 3W Grounded Duplex Receptacle (NEMA 5-20R)	5362V	HBL5362-I	5362-AI
20A 125V 2P 3W Grounded Duplex Receptacle (Red) (NEMA 5-20R)	5362RD	HBL5362-R	5362ARED
20A 250V 2P 3W Grounded Single Receptacle (NEMA 6-20R)	5461V	HBL5461-I	5871-I

<u>Description</u>	<u>Cooper WD</u>	<u>Hubbell</u>	<u>P &amp; S</u>
20A 125V 2P 3W 3W Grounded Duplex Isolated Ground Receptacle (Orange) (NEMA 5-20R)	IG5362RN	IG5362	5362-IG
20A 125V 2P 3W Grounded Duplex Ground Fault Interrupter (NEMA 5-20R)	GF20V	GF-5262-I	2091-I
Damp Location 20A 125V 2P 3W Grounded Duplex Ground Fault Interrupter with Weather Proof Cover (NEMA 5-20R)	GF20V- S966	GF-5262-I WP26	2091-I CA26GV
Weather Proof 20A 125V 2P 3W Grounded Duplex GFI With Weather Proof In-Use Cover (NEMA 5-20R)	GF20V- WIUHMV-1	GF-5252I- WP826	2095-SI- WIUC10CAGV
Dead Front 20A 125V GFCI Device	XDGF20V	GFR5350I	2085-I

## 2.2 WEATHERPROOF RECEPTACLES:

- A. Weatherproof receptacles shall be duplex GFI receptacles as specified under 26 2726 WIRING DEVICES, Part 2.1.B, mounted in cast metal outlet box fitted with specified while-in-use cover. Weatherproof receptacles shall be flush mounted in exterior walls.

## 2.3 DEVICE PLATES:

- A. All outlet boxes shall have a coverplate.
- B. All unused telephone outlets shall be fitted with a blank cover plate.
- C. Faceplates: Provide faceplates for single and combination wiring devices, of types, sizes, and with ganging cutouts as indicated. Select plates which mate and match wiring

devices to which attached. Metal screws shall be used for securing plates to devices; screw heads colored to match finish of plates.

- D. Faceplates shall be uniform in design and finish for switches, receptacles, and other outlets. Plates shall be one-piece of the required number of gangs; sectional plates shall not be used.
- E. Plates shall be jumbo oversize satin finished stainless steel.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION OF WIRING DEVICES:

- A. Install wiring devices as indicated; in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.
- B. Coordinate with other work, including painting, electrical boxes and wiring work, as necessary to interface installation of wiring devices with other work.
- C. Install wiring devices only in electrical boxes which are clean; free from excess building materials, dirt, and debris.
- D. The devices shall be installed in such a manor as to allow the faceplates to be installed without distortion of the faceplate or gaps between the faceplate and wall.
- E. Install faceplates after painting work is completed.
- F. Unless otherwise specified, install faceplates on all device and outlet boxes including telephone outlet boxes. As a minimum, blank plates shall be included for 25% of telephone/data outlets shown on the drawings.
- G. Tighten connector and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for wiring devices. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Stds. 486A. Use properly scaled torque indicating hand tool.

#### 3.2 PROTECTION OF FACEPLATES AND RECEPTACLES:

- A. At time of Substantial Completion, replace those items which have been damaged, including those burned and scored by faulty plugs.

#### 3.3 GROUNDING:

- A. Provide equipment grounding connections for wiring devices, unless otherwise indicated. Tighten connections to comply with tightening torques specified in UL Std. 486A to assure permanent and effective grounds.

3.4 TESTING:

- A. Prior to energizing circuitry, test wiring for electrical continuity, and for short circuits. Ensure proper polarity of connections is maintained. Subsequent to energization, test wiring devices to demonstrate compliance with requirements.

END OF SECTION 26 2726

**APPENDIX A – DRAWING INDEX**

**APPENDIX B – SPECIFICATION INDEX**

**APPENDIX C - CHILLER SPECIFICATIONS (OWNER PURCHASED)**

**APPENDIX D – ORIGINAL POINTS LIST**

**APPENDIX E – YORK SCHOOL DISTRICT 3, GENERAL BID  
INSTRUCTIONS**



## **APPENDIX A – DRAWINGS INDEX**

### **GENERAL**

CS COVER SHEET

### **MECHANICAL**

M001 SCHEDULES, NOTES, AND LEGENDS – MECHANICAL

M002 DETAILS – MECHANICAL

M100 CHILLER DEMOLITION – MECHANICAL

M200 CHILLER RENOVATION – MECHANICAL

M300 HOT AND CHILLED WATER PIPING SCHEMATIC – DEMOLITION  
AND RENOVATION

### **ELECTRICAL**

E100 CHILLER RENOVATION PLAN - ELECTRICAL

## **APPENDIX B – SPECIFICATION INDEX**

### **TECHNICAL SPECIFICATIONS**

#### **DIVISION 1 - GENERAL REQUIREMENTS**

01 1000	GENERAL REQUIREMENTS
01 1010	SPECIAL CONDITIONS
01 3115	GENERAL CLEANING

#### **DIVISION 23 - HVAC**

23 0501	GENERAL HVAC REQUIREMENTS
23 0502	COMMON HVAC MATERIALS
23 0510	DOCUMENTATION AND CLOSEOUT
23 0511	SUBMITTALS
23 0519	METERS AND GAUGES FOR HVAC PIPING
23 0523.01	GENERAL DUTY VALVES FOR HVAC PIPING
23 0529	HANGERS AND SUPPORTS FOR HVAC PIPING
23 0533	HEAT TRACING FOR HVAC PIPING
23 0548	SOUND, VIBRATION, AND SEISMIC CONTROL FOR HVAC
23 0592	SYSTEM START-UP
23 0593	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 0601	HYDRONIC SPECIALTIES
23 0700	HVAC INSULATION
23 0716	HVAC EQUIPMENT INSULATION
23 0719	HVAC PIPING INSULATION
23 0900	INSTRUMENTATION AND CONTROLS FOR HVAC (GENERAL)
23 0900.04	SYSTEM INTEGRATION CONTRACTOR (NIAGARA)
23 0993	SEQUENCE OF OPERATIONS FOR HVAC CONTROLS & POINTS LIST
23 0993.03	SEQUENCE OF OPERATION (HYDRONIC SYSTEMS)
23 2113	HVAC PIPING (GENERAL)
23 2123	HYDRONIC PUMPS

#### **DIVISION 26 - ELECTRICAL**

26 0500	ELECTRICAL GENERAL REQUIREMENTS
26 0501	ELECTRICAL COORDINATION

26 0502	ELECTRICAL DEMOLITION
26 0503	CUTTING, PATCHING & REPAIR
26 0519	WIRE AND CABLE - BUILDING WIRE (600 VOLTS AND BELOW)
26 0526	GROUNDING
26 0533	METALLIC CONDUITS/RACEWAYS AND FITTINGS
26 0535	ELECTRICAL BOXES
26 0548	SEISMIC SUPPORT OF ELECTRICAL EQUIPMENT
26 2726	WIRING DEVICES

**APPENDIX**

APPENDIX A	DRAWING INDEX
APPENDIX B	SPECIFICATION INDEX
APPENDIX C	OWNER PURCHASED CHILLER
APPENDIX D	ORIGINAL POINTS SLIST



## Design Conditions Datasheet

Unit Tag	Qty	Model No	Net Cooling Capacity (ton.R)	Nominal Voltage	Refrigerant Type
YLAA0200HE46VSD	1	YLAA0200HE46XFBSDTX	195.8	460-3-60.0	R410A

YLAA0200HE	46XFBSDTXA	SXBLXCXX44	SE1XXXHXXX	YAXGXXX3XX	XVXNXXXXXX			
....5...10	....5...20	....5...30	....5...40	....5...50	....5...60	....5...70	....5...80	....5...90

Evaporator Data		Evaporator Data (Cont.)		Performance Data	
EWT (°F)	54.00	Fluid Volume (USGAL)	12.68	EER (Btu/W-h)	10.15
LWT (°F)	44.00	Min. Flow Rate (USGPM)	229.8	IPLV (Btu/W-h)	18.49
Design Flow Rate (USGPM)	467.3	Max. Flow Rate (USGPM)	624.5		
Evap. Press. Drop (ft H <sub>2</sub> O)	18.9				
Fluid	Water				
Strainer Press. Drop (ft H <sub>2</sub> O)	0.000	Ambient Temp. Design (°F)	95.0	Rigging Wt. (lb)	9991
Ext. Kit Press. Drop (ft H <sub>2</sub> O)	0.000	Altitude (ft)	0.000	Operating Wt. (lb)	10119
Total Press. Drop (ft H <sub>2</sub> O)	18.9	Compressor Type	Scroll - Hermetic	Refrigerant Charge (lb)	190.9
Fouling Factor (h.ft <sup>2</sup> .F/Btu)	0.000100				

Circuit	1	2	3	4
Compressor RLA	51/51/51	51/51/51		
Fan QTY/FLA (each)	6/4	6/4		
High LRA Current	316/316/316	316/316/316		

Single Phase		Operating Condition Electrical Data	
Min. Circuit Ampacity	374	Compressor kW	211.2
Recommended Fuse/CB Rating	400	Total Fan kW	20.16
Max. Inverse Time CB Rating	400	Total kW	231.4
Max. Dual Element Fuse Size (A)	400		
Unit Short Circuit Withstand (STD)	5 [kA]		
Wires Per Phase	2 + 3		
Wire Range (Lug Size)	250 - 500 kcmil + #2/0		
Starter Type	AWG - 400 kcmil Across The Line		

### Notes:

This unit does not have a coil coating selected.

Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Using Vapor Compression Cycle Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at [www.ahridirectory.org](http://www.ahridirectory.org). Auxiliary components included in total kW - Oil heaters, Chiller controls. Auxiliary power is already included in the compressor and fan power



Compliant with the requirements of the LEED Energy and Atmosphere Enhanced Refrigerant Management Credit (EAc4).

Part Load Rating Data				
Stage	Ambient (°F)	Capacity (ton.R)	Total kW	Unit Efficiency (Btu/W·h)
1	95.0	195.8	231.4	10.15
2	88.1	173.1	168.7	12.32
3	80.4	148.0	118.1	14.92
4	70.9	117.0	78.05	17.89
5	60.4	82.73	44.11	22.51
6	55.0	41.04	20.52	24.00

Power Levels (in Accordance with)										
Stage	Ambient (°F)	63 Hz (dB)	125 Hz (dB)	250 Hz (dB)	500 Hz (dB)	1 kHz (dB)	2 kHz (dB)	4 kHz (dB)	8 kHz (dB)	LWA
1	95.0	101	100	96	96	92	90	86	82	98
2	88.1	99	98	94	94	91	88	84	81	96
3	80.4	97	96	92	92	88	86	82	78	94
4	70.9	94	93	89	90	86	85	80	78	92
5	60.4	89	88	84	84	82	81	77	71	88
6	55.0	86	85	81	81	79	78	74	68	85

Note: Unit is equipped with Low Sound Fans with VSD Control.

Measurement of sound pressure used to obtain the sound power data presented is based on AHRI-370.

Air-cooled chillers are rated in terms of sound power not sound pressure. Johnson Controls provides estimates of sound pressure, but this is not the rating metric.

For an air-cooled chiller, sound pressure calculated from sound power varies depending on how the chiller is assumed to behave, i.e. the radiation model. In other words, determining sound pressure from sound power requires making assumptions that result in different answers at a given distance from the chiller. The environment also influences sound pressure in the field installation. Sound pressure estimation radiation models pertaining to air-cooled chillers include the 'traditional' hemispherical model, parallelepiped model and equivalent hemispherical model.

Regarding sound power, Johnson Controls references tolerance limits based on ASHRAE guidelines. These are +/- 6dB in the 63Hz octave band, +/- 4dB in all other octave bands and +/- 3dB for the overall dBA.

Tolerance limits are based on uncertainties associated with:

1. Measurement Test Procedure
2. Repeatability
3. Production / Manufacturing Variability

Standard deviation associated with air-cooled chiller sound data is a measure of spread i.e. it indicates the range of probability of sound levels. Note that for operating conditions other than AHRI's Standard Rating Condition, higher levels of uncertainty can be expected.

Lead times for factory performance testing depend on test laboratory availability. Please confirm with Johnson Controls Customer Service.

Performance at AHRI Conditions					
Evaporator Data		Condenser Data		Performance Data	
EWT (°F)	54.00	Ambient Temp. (°F)	95.0	EER (Btu/W·h)	10.15
LWT (°F)	44.00	Altitude (ft)	0.000	IPLV/IP (Btu/W·h)	18.49
Flow Rate (USGPM)	487.3			Net Cooling Capacity (ton.R)	195.8
Pressure Drop (ft H2O)	18.9				
Fluid	Water				
Fouling Factor (h.ft².F/Btu)	0.000100				
Fluid Volume (USGAL)	12.68				

Note: Unit rated at design condition capacity.



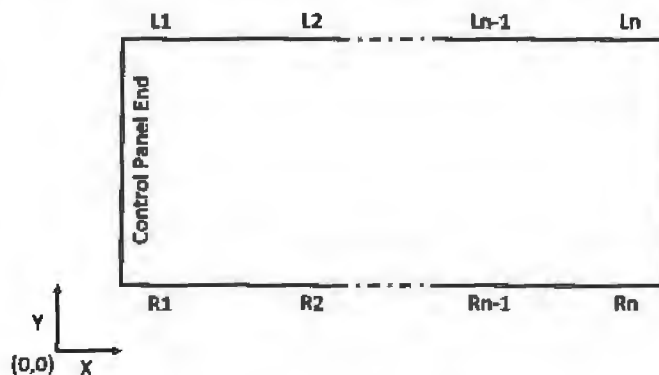
YLAA0200HE46VSD	1	YLAA0200HE46XFBSDTX

1	<p>Base Unit (3369) YLAA0200HE R-410A Refrigerant (Fully Charged) Voltage Code - (460/3/60) SP NF Disconnect Switch w/Lockable Handle Control Transformer Both Low/High Ambient Kit Required Connected Services Ready – BACnet/Modbus/N2 English cUL/cETL Listing Service Isolation Valves Electronic Expansion Valves Hot Gas Bypass (1 circuit) Flow Switch + Extension Kit ASME Pressure Vessel &amp; Associated Codes Thermal Dispersion Flow Switch All Aluminum Microchannel Coils No Heat Recovery Wire / Louvered Enclosure Panels No Sound Kit Low Sound Fans with VSD Control Neoprene Isolators No Pump Kit</p>	



# AVM Report

Project Name	Unit Tag		
Stock YLAA0136-0230 9-28-21	YLAA0200HE46VS D	2021-10-12	Air Cooled Scroll Chillers
PIN	Version		
YLAA0200HE46XFBSDTXASXBLXCXX44SE1XXXHXXXYAXGXX3XXXVXNXXXXXX	E.21.3.26974.0-D.92.0003		



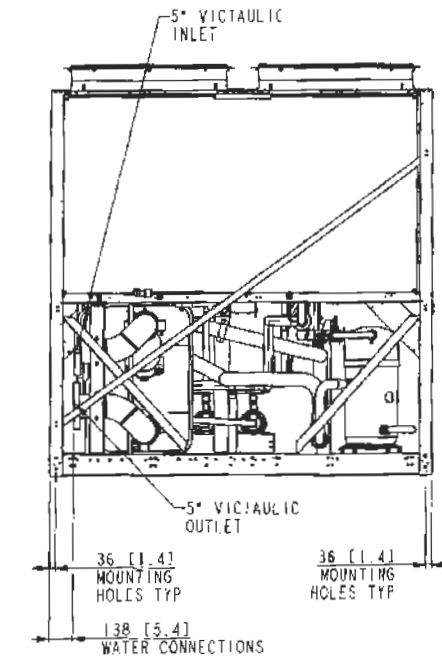
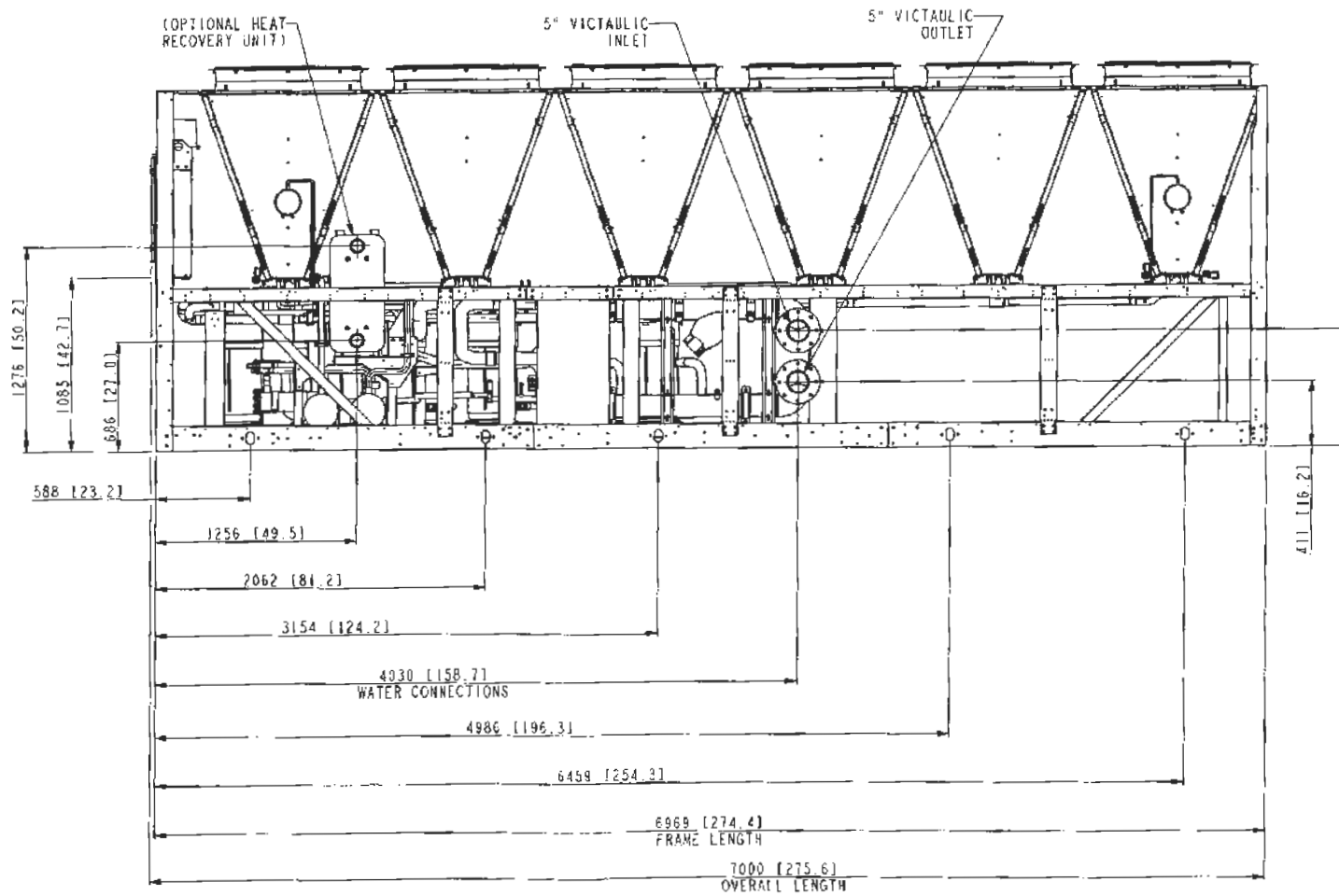
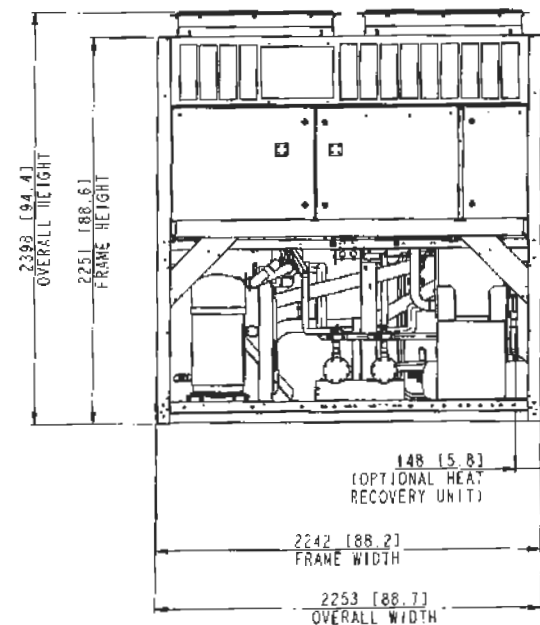
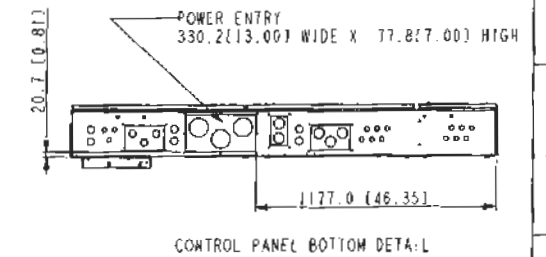
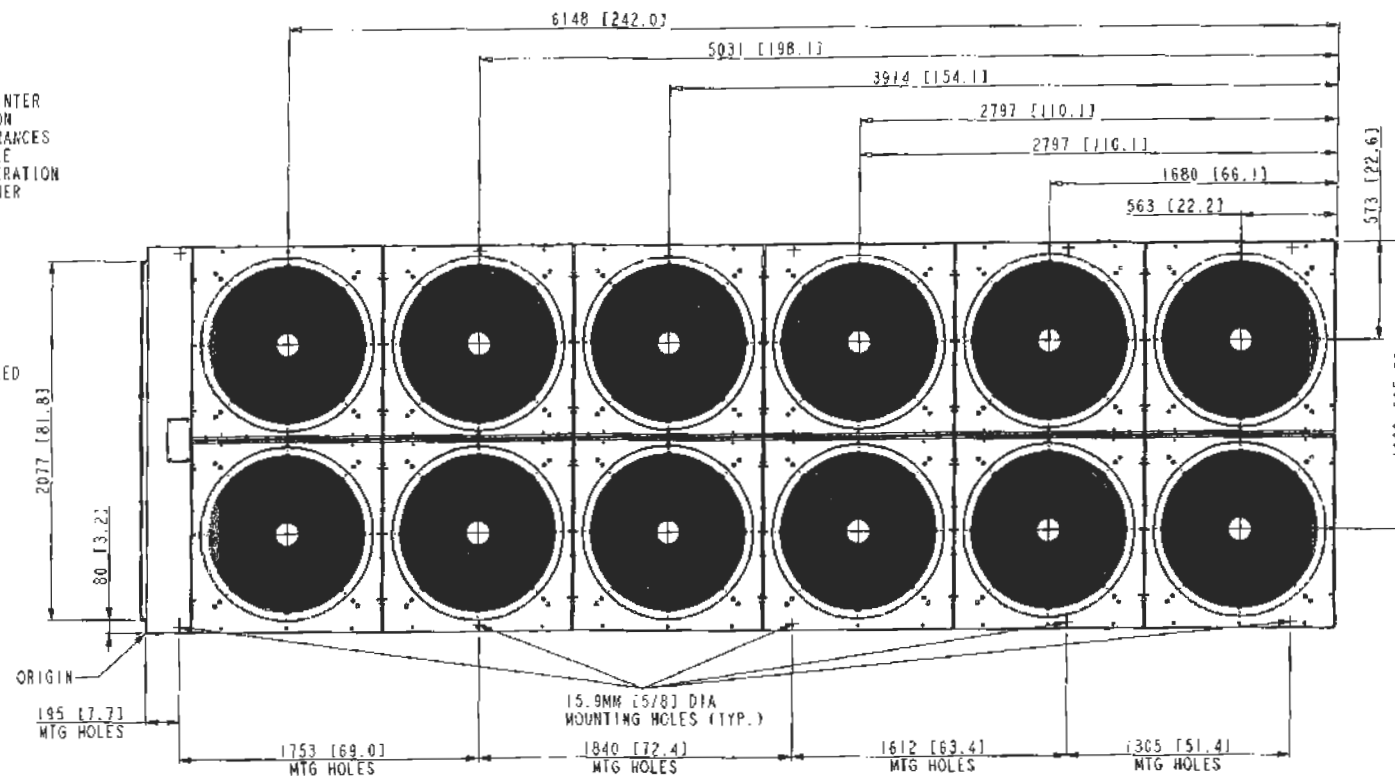
LOCATION	X Distance (in)	Y Distance (in)	Vendor Isolator Part Number	COLOUR	Operating Weights (lb)
R1	7.7	1.4	029-25335-001(434002)	Charcoal	814
R2	76.7	1.4	029-25335-002(434004)	Red	1226
R3	149.1	1.4	029-25335-002(434004)	Red	1127
R4	212.5	1.4	029-25335-001(434002)	Charcoal	419
R5	263.9	1.4	029-25335-001(434002)	Charcoal	789
L1	7.7	86.9	029-25335-002(434004)	Red	1052
L2	76.7	86.9	029-25335-004(434005)	Charcoal	2180
L3	149.1	86.9	029-25335-002(434004)	Red	1345
L4	212.5	86.9	029-25335-001(434002)	Charcoal	419
L5	263.9	86.9	029-25335-001(434002)	Charcoal	789

Total Weight (lb)		C	
Operating	10119	Xg	121.4
Shipping	8991	Yg	50.1

All values are de-rated by 15% apart from those which have part number. (029-25334-013 and 029-25336-014: 0% de-rated), (029-25335-004: 10% de-rated), (029-25335-001 and 029-25335-003: 25% de-rated)

NOTE:

- PLACEMENT ON A LEVEL SURFACE FREE OF OBSTRUCTIONS (INCLUDING SNOW, FOR WINTER OPERATION) OR AIR-CIRCULATION ENSURES RATE PERFORMANCE, RELIABLE OPERATION AND EASE OF MAINTENANCE. SITE RESTRICTIONS MAY COMPROMISE MINIMUM CLEARANCES INDICATED BELOW, RESULTING IN UNPREDICTABLE AIR FLOW PATTERNS AND POSSIBLE DIMINISHED PERFORMANCE. JOHNSON CONTROLS UNIT CONTROLS WILL OPTIMIZE OPERATION WITHOUT NUISANCE HIGH PRESSURE SAFETY CUTOFF. HOWEVER, THE SYSTEM DESIGNER MUST CONSIDER POTENTIAL PERFORMANCE DEGRADATION.
1. RECOMMENDED MINIMUM CLEARANCES:
    - 1.1.1. SIDE TO WALL - 1828.8mm [72.00]
    - 1.1.2. REAR TO WALL - 1828.8mm [72.00]
    - 1.1.3. CONTROL PANEL TO WALL - 1219.2mm [48.00]
    - 1.1.4. TOP - NO OBSTRUCTIONS ALLOWED.
    - 1.1.5. DISTANCE BETWEEN ADJACENT UNITS - 3048mm [120.00]
    - 1.1.6. NO MORE THAN ONE ADJACENT WALL MAY BE HIGHER THAN UNIT
  2. WEIGHT AND CENTRE OF GRAVITY- REF TO AVM REPORT
  3. INSTALLING CONTRACTOR MUST INCLUDE VENT AND DRAIN ACCOMMODATIONS IN CHILLED WATER PIPING NEAR EVAPORATOR.
  4. NUMBER OF COMPRESSORS MAY VARY FROM DRAWING.
    - 4.1. REFER TO YORKWORKS REPORTS
  5. FOR MONTERREY, MEXICO AND SAN ANTONIO, TEXAS BUILDS ONLY



THIS DRAWING PERTAINS TO THE FOLLOWING MODELS:		
YLAA 0200 HE		
YLAA 0230 HE		

REV.	DATE	EC. NO.	DR.	CHK.	ENG.
1	24 AUG-2018	0316-0330	FJM	FJM	
2	13-16: ADDED TABLE, 05: DELETED DIM 2930, C3: ADDED DIM 4030.				
3	ADDED DIM'S 36, DIM 135 ADDED WATER CONN. 14: DELETED DIM 36.4				
4	DELETED DRAWING 101 BLOCK, 3-1 4-10: ADDED DIM'S FOR FAN LOC.				
5	DIM 1020 WAS 7000, 7-110: ADDED OPTIONAL HEAT RECOVERY UNIT				

CONTINUED

ALL PROPRIETARY RIGHTS IN THE SUBJECT MATTER HEREIN ARE RESERVED AND NO PERMISSION IS GRANTED TO REPRODUCE THIS PRINT IN WHOLE OR IN ANY PART, OR DISCLOSE ANY OF THE INFORMATION HEREIN TO OTHERS WITHOUT WRITTEN RELEASE BY JOHNSON CONTROLS INCORPORATED.

		<b>JOHNSON CONTROLS - BUILDING EFFICIENCY</b> 507 EAST WISCONSIN STREET, MILWAUKEE, WI, 53202 USA	
DRAWN: M. LUTON MODEL: M. LUTON CHD: A. SATCH ENG: A. KELLY	19-FEB-2018 19-FEB-2018 19-FEB-2018 19-FEB-2018	YLAA 12-FAN 60HZ 0200 & 0230 WITH OPTIONAL HEAT RECOVERY	MATERIAL: ENG. STD. PART NO.: CUI SIZE: N/A
CASE NUMBER: 66935 SCALE: 0.850 MASS (kg): 9,000 GR. G. NO.:		DRAWING NUMBER: 035-24059-C:14 SHEET: 1 OF 1	





**APPENDIX E**  
**YORK SCHOOL DISTRICT 3**  
**GENERAL BID INSTRUCTIONS**

**INSTRUCTIONS TO BIDDERS**

1. These instructions to bidders are in addition to the AIA documents included in these specifications.
2. Where the documents do not agree, the more stringent requirements shall be applicable.
3. Of particular importance are the insurance requirements listed in this document.

**SECTION A: GENERAL BID INSTRUCTIONS AND CONDITIONS (WHERE APPLICABLE)**

**GENERAL BID INSTRUCTIONS**

**1. INSTRUCTIONS TO BIDDERS:**

- A. Bids shall be publicly opened at **10:00 AM** on **May 26, 2022**. Bid openings shall be conducted in the Procurement Services, which is located at 386 East Black Street, Rock Hill, SC 29730. Sealed bids shall be uploaded to **Vendor Registry** <http://vrapp.vendorregistry.com/RockHillSchools>, hand delivered or mailed to the **Procurement Services Attention: IFB 21-2245** located at 386 East Black Street, Rock Hill, SC 29730. The District encourages vendors who wish to attend the bid opening to do so by conference call.

Vendors may take part by dialing:

**Phone Number:** 803 -985-3599

**Conference ID:** 1440403

- B. Bids shall be submitted **NO LATER THAN 10:00 AM** in the place and manner as described in paragraph 1A above. Bids received after 10:00 AM shall be late bids. Late bids shall not be considered for award and will be returned to the vendor unopened.
- C. The District shall not accept responsibility for unidentified bids.
- D. In the event that a bid is unintentionally opened prior to the official time set for a bid opening, the employee opening such bid shall immediately sign the envelope and deliver it to the Procurement Services Director.
- E. All prices shall be entered in ink or typewritten and shall remain firm for not less than 60 calendar days from the bid date. Mistakes may be crossed out, corrections may be inserted adjacent, and shall be initialed in ink by the person signing the bid.
- F. The District shall not accept oral, emailed, or FAXED bids.
- G. The Term "Offer" Means Your "Bid" or "Proposal" or "Quotation"  
The Term "Offeror" Means "Vendor" or "Contractor" or "Bidder"

2. **TAXES:** South Carolina Sales Tax shall be shown as a separate entry on the bid total, if applicable at 7%.
3. **AMBIGUOUS BIDS:** Bids, which are uncertain as to terms, delivery, quantity, or compliance to requirements/specifications, may be rejected or otherwise disregarded.
4. **BIDDERS QUALIFICATIONS:** Bids shall be considered only from bidders who are regularly established in the business called for, and who in the judgment of the District, are financially responsible and able to show evidence of their reliability, ability (to render prompt and satisfactory service in the volume required by this solicitation), experience, equipment, facilities, and personnel directly employed or supervised.
5. **ACKNOWLEDGEMENT OF ADDENDUM(S):**
  - A) Bidders shall acknowledge receipt of all addendum(s) either by signing and returning one copy of the addendum or by acknowledging the change on the bid form.
  - B) It is the bidder's responsibility to determine whether they have received any or all addendum(s).
6. **AFFIRMATIVE ACTION:** The successful bidder shall take affirmative action in complying with all Federal, State, and local requirements concerning fair treatment of all employees/applicants, without regard or discrimination by reasons of race, color, sex, religion, national origin, and physical handicap.
7. **COMMUNICATION WITH PROSPECTIVE BIDDERS:**
  - A. All communication concerning this IFB must be in writing to the Procurement Services Director. Email is the preferred method of communication.
  - B. Oral explanation or instructions provided prior to the award of a contract shall not be binding.
  - C. From the issue date of this Proposal until the completion of the selection process and the award notification is announced, bidders are not allowed to communicate with District employees and/or contracted agents related to this IFB for any reason except as authorized by the Procurement Services Director. Violation of this provision may result in rejection of the vendor's response.
  - D. It is the vendor's responsibility to check the District's website procurement page for any addenda, responses to vendor questions, or other communications, which may be necessary during the solicitation process.
8. **WITHDRAWAL OF BIDS:** Any bidder may withdraw his bid prior to the closing time scheduled for the receipt of bids. All requests to withdraw bids must be submitted in writing and must document the fact that the acceptance of the bid will cause the bidder substantial loss.

9. **ASSIGNMENT:** No contract may be assigned, sublet, or transferred without the written consent of the Director of Procurement.
10. **SUBMISSION OF DATA:** Each bidder, upon request, shall submit evidence of liability insurance, Workmen's Compensation, and any other data released to this solicitation, to satisfy the requirements of the solicitation and the execution of a contract.
11. **FAILURE TO SUBMIT A BID:** Vendors not responding with a bid should not return this solicitation. Instead, they should advise the District by letter or postcard whether they want to receive future consideration for similar requirements. Any vendor failing to respond to three consecutive bids for the same items may be removed from the applicable bid lists.
12. **EXCEPTIONS:** Notwithstanding any prior negotiations, the specifications and terms and conditions provided herein take precedence. Formal objection is hereby made to any or different terms proposed by Proposers unless listed on a separate sheet labeled "Exceptions", and agreed to in writing by the District. Proposals, which are uncertain as to terms, delivery, quantity, or compliance to requirements/specifications, may be rejected or otherwise disregarded.
13. **RIGHT TO PROTEST (Section 4210):** Any actual or prospective bidder who is aggrieved in connection with the solicitation or award may submit a protest to the Director of Purchasing. The protest shall be submitted in writing within fifteen (15) calendar days of the date of issuance of the Invitation for Bids or Request for Proposal or other solicitation document, whichever is applicable, or any amendment to it, if the amendment is at issue.  
Any actual bidder or prospective bidder who is aggrieved in connection with the intended award or award of a contract shall protest to the Director of Purchasing. The protest shall be submitted within ten (10) of the date award or notification of intent to award, whichever is earlier.
14. **SPECIFICATIONS:** Any deviation from the specifications must be clearly pointed out on the bid or attached as a separate sheet. Otherwise, the bidder will be held responsible for providing materials that are in strict compliance with the specifications. Deviations must be explained in detail. All materials shall be subject to inspection and approval after delivery. The District reserves the right to reject and return, at the risk and expense of the vendor, any portion of a shipment that is defective or fails to comply with specifications. The rejection of certain items will not invalidate the remaining order.

15. **SERVICE DATA MANUALS:** The Contractor agrees to furnish two (2) copies of a manual, handbook, or brochure containing operation and maintenance instructions (to include pictures, illustrations, schematics and complete repair/test guides as necessary).

Where applicable, it shall include electrical data and connection diagrams for all utilities. The instructions shall also contain a complete list of all replaceable parts showing part numbers, nomenclature and quantity required.

16. **BIDDER'S RESPONSIBILITY:** Each bidder shall fully acquaint himself with the scope of work required for the execution of the work specified by this bid. This will sometimes require on-site observations. The failure of a bidder to acquaint himself with existing conditions shall in no way relieve the bidder of any obligations with respect to this bid or any resulting contract.

17. **POSTING OF AWARD:** Notice of Award or Intent to Award will be posted to the Procurement Services website and Vendor Registry.

18. **PROPRIETARY INFORMATION:** Unless otherwise required by law, and until the public opening of the proposals, all information, materials and other documents submitted by a respondent shall not be released or made available to any person or entity except District representatives assisting in this procurement process. Unless required by law, proprietary or financial information submitted to the District by a respondent will not be disclosed if the respondent visibly marks each part of the proposal that the respondent considers confidential, financial or proprietary information with the word "CONFIDENTIAL."

19. **AWARDING POLICY:** The District reserves the right to select and award on an individual item basis, lot (group) basis or an "all or none" basis, whichever the District determines to be most advantageous. The award basis is stated in Section B.

Therefore, individual prices per item must be indicated on the Proposal form. Contractors are encouraged to offer discounts for consideration of consolidated award. Furthermore, the District, in determining the lowest responsible Bidder on each of the items shall consider, in addition to the Proposal price, conformity to specifications, delivery, the District's opinion relative to the quality of materials/services being offered, training, suitability and adaptability of the services required by this solicitation. The District reserves the right to reject or accept any or all proposals and to waive any informalities and/or irregularities thereof.

In the event that identical proposals are received on like items, the Director of Purchasing shall award proposals in accordance with the District's Procurement Code.

- 20. MINORITY PARTICIPATION:** It is the policy of the District to pursue the goal of at least 10% Small and Minority Business Enterprise (SMBE) utilization in the provision of goods and services to the District while at the same time maintaining the quality of goods and services provided to the District through the competitive bidding process. It is the purpose of this policy to allow minority business enterprises to expand their opportunities and capacities by participating in all District operated programs. The District has developed a plan for participation in projects by minority business. This plan includes the following elements.
- a) Outreach – A commitment to make every effort to inform contractors of pending contract opportunities through advertisements, workshops, brochures, and availability of plans.
  - b) Good Faith Effort – A commitment to verify contractor solicitations to ensure that sufficient time and information are available to make a responsible reply.
  - c) Identification and Recruitment – A commitment to coordinate efforts with the Division of Small and Minority Business Contracting and Certification (SMBCC) in the development of potential minority contractor interest.
  - d) Monitoring and Reporting – A commitment to measure and report actual SMBE participation.

## **TERMS AND CONDITIONS**

1. **ACCIDENTS:** The vendor shall hold the District harmless from any and all damages and claims that may arise by reasons of any negligence on the part of the vendor, his agents, or employees in the performance of this contract; and, in case of any action brought against the District or any of its agents or employees, the vendor shall assume full responsibility for their defense. Upon his failure to do so on the proper notice, the District reserves the right to defend such motion and charge all costs to the vendor. The vendor shall take all precautions necessary to protect the public against injury
2. **TERMINATION:** Subject to the provisions below, this contract may be terminated by the Director of Purchasing, provided a thirty (30) calendar day advance written notice is given to the Vendor.
  - Termination for convenience.** In the event this contract is terminated or canceled upon request and for the convenience of the District, the District shall negotiate reasonable termination costs, if applicable.
  - Termination for Cause.** Termination by the District for cause, default or negligence on the part of the contractor shall be excluded from the foregoing provision. Termination cost, if any, shall not apply. The thirty (30) day advance notice requirement is waived and the default provisions of this bid shall apply.

**3. EXAMINATION OF RECORDS:**

Rock Hill School District has the right to audit the books and records of the vendors that pertain to this purchase order, both independent of, and pursuant to, the District Procurement Code. Such books and records shall be maintained for three (3) years from the date of final payment under the purchase order.

The District may conduct, or have conducted, performance audits of the vendor. The District may conduct, or have conducted, audits of specific requirements of this bid as determined necessary by the District.

Pertaining to all audits, vendor shall make available to the District access to its computer files containing the history of purchase order performance and all other documents related to the audit. Additionally, any software used by the vendor shall be made available for auditing purposes at no cost to the District.

- 4. COMPETITION:** There are no federal or state laws that prohibit bidders from submitting a bid lower than a price or bid given to the United States Government. Bidders may bid lower than the US Government contract price without any liability, because the District is exempt from the provisions of the Robinson-Patman Act and other related laws.

- 5. SOUTH CAROLINA LAW CLAUSE:** Upon award of a contract under this solicitation, the person, partnership, association, or corporation to whom the award is made must comply with the laws of South Carolina, which requires such person or entity to be authorized/licensed to do business in this state. Notwithstanding the fact that applicable statutes may exempt or exclude the successful bidder from requirements that it be authorized/licensed to do business in this state.

By submission of this signed bid, the bidder agrees to subject itself to the jurisdiction and process of the courts of the State of South Carolina, as to all matters and disputes arising or to arise under the contract and the performance thereof, including any questions as to the liability of taxes, licenses or fees levied by the state.

- 6. STATEMENT OF COMPLIANCE AND ASSURANCES:** By submitting a Proposal and signing the Proposal schedule, vendors are providing written assurance of non-collusion and understanding and acceptance of all general and special conditions stated in this contract. In addition, this signature certifies that the firm or agency represented in the Proposal submitted complies with all applicable federal and state laws and regulations.

- 7. MATERIALS REQUIRED:** Materials required must be in conformity with the specifications and shall be subject to inspection and approval after delivery, and shall comply in quality and type of material and method of manufacture with all applicable local or state laws pertaining thereto. The right is reserved



to reject and return at the risk and expense of the vendor such portions of any shipment that may be defective or fail to comply with specifications and without validating the remainder of the order.

8. **"OR APPROVED EQUAL" CLAUSES:** Certain processes, types of equipment or kinds of materials are described in the specifications and on the drawings by means of trade names and catalog numbers. In each instance where this occurs, it is understood and inferred that such description is followed by the words "or approved equal". Such method of description is intended merely as a means of establishing a standard of comparison. However, the District reserves the right to select the items which, in the judgment of the District, are best suited to the needs of the District, based on price, quality, service, availability and other relative factors. Vendors must indicate brand name, model, model number, size, type, weight, color, etc. of the item Proposal if not exactly the same as the item specified.

Vendor's stock number or catalog number is not sufficient to meet this requirement. If any Vendor desires to furnish an item different from what is specifically mentioned in the specifications, he/she shall submit with his Proposal the information, data, pictures, cuts, designs, etc., of the material he/she plans to furnish so as to enable the District to compare the material specified; and, such material will be given due consideration. The District reserves the right to insist upon and receive the items as specified, if submitted items do not meet the District's standards for acceptance.

9. **PATENTS:** The vendor shall hold the District, its officers, agents, and employees harmless from liability of any nature or kind whatsoever, on account of use by the publisher or author, manufacturer or agent, of any copyrighted or non-copyrighted composition, secret process, article or appliance furnished or used under this Proposal.
10. **INSTALLATION:** Where equipment is called for to be installed under this Proposal, it shall be placed, leveled and accurately fastened into place by the vendor. He/she shall be responsible for obtaining dimensions and other such data which may be required to assure exact fit to work under another contract or as intended by the District. The vendor shall be responsible for providing an appropriate amount of lead-in for equipment requiring electrical, water or other basic service. The District will normally be responsible for bringing the appropriate service to the lead-in. The vendor shall completely remove from the premises all packaging, crating, and other litter due to his/her work. He/she shall also be responsible the cost of repair of any damage to existing work which is caused by him/her during the installation of his/her equipment.
11. **GUARANTEE:** The vendor shall supply a guarantee for all workmanship for the equipment he/she is furnishing for a period comparable to the standards in the industry. When defects or faulty materials are discovered during the guarantee period, the vendor shall, immediately, upon notification by the District, process at his/her own expense, to repair or replace the same.

**12. PROPER INVOICE:** Invoices submitted for payment for goods or services provided under this contract shall contain, as a minimum, the following information:

- Name of business concern
- Contract number or other authorization for delivery of service or property
- Complete description
- Price and quantity of property or service actually delivered or executed
- Shipping and payment terms
- Labor Costs separate from material costs
- Name where applicable
- Title, telephone number and complete mailing address of responsible official to whom payment is to be sent; and other substantiating documentation of information as required by the contract
- All invoices shall be submitted via email to [APINVOICES@rhmail.org](mailto:APINVOICES@rhmail.org) with the Company name and purchase order# referenced in the subject line

**13. TIME OF COMPLETION:** Date of delivery shall be a consideration factor in the awarding process. The Vendor shall include with his/her Proposal delivery dates for each item as requested, and shall furnish all items in accordance with the Proposal solicitation unless an extension was granted by the District in writing.

**14. DEFAULT:** In the event the successful contractor defaults on any part or all of his Proposal, ROCK HILL SCHOOL DISTRICT THREE reserves the right to purchase any or all of the services in default in the open market and charge the defaulting contractor for the difference of the cost. Should such charge be assessed, no subsequent proposals of the defaulting contractor shall be considered unless assessed charge has been satisfied.

**15. DRUG-FREE WORKPLACE:** This contract is subject to the Drug Free Workplace Act if the stated or estimated value is Fifty Thousand Dollars or more. The contractor shall comply with all terms and conditions of the Drug Free Workplace Act, S. C. CODE ANN. 44-107-10 et seq. (1976 as amended), if this contract is for a stated or estimated value of Fifty Thousand Dollars or more. By signing this Proposal, you are certifying that you will comply with the Drug Free Workplace Act.

**16. NON-APPROPRIATIONS:** Any contract entered into by ROCK HILL SCHOOL DISTRICT THREE resulting from this Request shall be subject to cancellation without damages or further obligation when funds are not appropriated or otherwise made available to support continuation of performance in a subsequent fiscal period or appropriated period.

**17. PACKAGING AND DELIVERY:** All shipments shall be FOB: to the District location as cited on the purchase order/contract. The purchase order/contract number shall be clearly stated on the shipping

container. The parties agree hereto that delivery by the contractor to the common carrier does not constitute delivery to the District. Any claims for loss or damage shall be between the contractor and the carriers.

- 18. UNIT PRICES:** A unit price will take precedence over an extended price. When discrepancies exist between a unit price and an extended price, the unit price shall govern and be presumed to be the correct price.
- 19. PRICE ADJUSTMENT BASED ON CONTRACTOR'S COST:** Any request for price increase must be submitted to the District at least ninety (90) days prior to the renewal date unless otherwise stated. (Price increases will only become effective if approved in writing by the Procurement Services Director). The maximum increase will not exceed the unadjusted percent change from the previous year shown in the Consumer Price Index (CPI), All Urban Consumers (CPI-U), "Other Goods and Services" or the current market conditions. A justification of the increase shall be submitted in addition to the index.
- 20. ITEM SUBSTITUTION:** No item substitutions will be allowed on purchase orders, awarded as a result of this solicitation, without the written permission of the Director of Purchasing.
- 21. SUSPENSION AND DEBARMENT:** By submitting a proposal (IFB/RFP/RFQ), the applicant certifies, to the best of its knowledge and belief that the applicant and/or any of its principals, sub grantees, or subcontractors are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any state or federal agency; have not, within a three-year period preceding this application, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, tax evasion, or receiving stolen property; and are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated above. Applicant has not, within a three –year period preceding this application, had one or more contracts terminated for default by any public (federal, state, or local) entity.
- 22. INDEMNITY:** Contractor agrees to protect, defend, indemnify and hold Rock Hill School District Three, its officers, employees and agents free and harmless from and against any and all losses, penalties, damages, settlements, costs, charges, professional fees or other expenses or liabilities of every kind and character arising out of or relating to any and all claims, liens, demands, obligations, actions, proceedings, or causes of action of every kind in connection with or arising out of this agreement and/or the performance hereof that are due, in whole or in part, to the negligence of the Contractor, its officers, employees, subcontractors or agents.

Contractor further agrees to investigate, handle, respond to, provide defense for, and defend the same at its sole expense and agrees to bear all other costs and expenses related thereto.

**23. INSURANCE REQUIREMENTS:** Contractor shall maintain, throughout the performance of its obligations under this contract, a policy or policies of Worker's Compensation insurance with such limits as may be required by law, and a policy or policies of general liability insurance insuring against liability for injury to, and death of, persons and damage to, and destruction of, property arising out of or based upon any act or omission of the contractor or any of its subcontractors or their respective officers, directors, employees or agents. Such general liability insurance shall have limits sufficient to cover any loss or potential loss resulting from this contract.

The successful contractor shall provide a certificate of insurance within ten (10) calendar days after notification of award of the proposal. The insurance required shall be written for not less than totals listed below:

A. WORKERS' COMPENSATION

Statutory limits covering all employees, including Employer's Liability with limits of:

\$500,000	Each Accident
\$500,000	Disease - Each Employee
\$500,000	Disease - Policy Limit

B. COMMERCIAL GENERAL LIABILITY

Covering all operations involved in this Agreement.

\$1,000,000	General Aggregate
\$1,000,000	Products/Completed Operations Aggregate
\$1,000,000	Each Occurrence
\$ 5,000	Medical Payments

C. COMMERCIAL AUTOMOBILE LIABILITY

\$1,000,000      Combined Single Limit - Any Auto

- 24. WORKMANSHIP:** All workmen shall be thoroughly experienced and/or trained and certified in the particular trade or class in which they are employed. All work shall be done according to the specifications covering the class or type of work and shall meet the approval of the School District's representative.
- 25. LIABILITY-** The contractor shall assume liability for damage or loss resulting from the wrongful act(s) and/or negligence of his employees. The contractor or his insurer shall reimburse the School District for any such damage or loss within 30 days.

Subcontracting

The contractor shall not subcontract any portion of this contract without prior written approval from the School District, which consent shall not be unreasonably withheld provided, contractor remains liable for performance of all items of this contract.

Laws

The contractor shall comply with all laws, ordinances, codes, rules and regulations bearing on the conduct of the work, including those of Federal, State, and Local agencies having jurisdiction. This shall include but not be limited to minimum wages, labor and equal employment opportunity laws.

- 26. SAFETY, DAMAGE OR THEFT:**  
Contractor shall be responsible for complying at all times of this contract with, OSHA, AHERA, SCDHEC, and EPA requirements and shall immediately report any loss of time or injuries to the Director of Operations (803) 981-1150.
- 27. SECURITY:** The Contractor shall be responsible for safeguarding against loss, theft, or damage of all Rock Hill School Districts' property, materials, equipment, and accessories that might be exposed to the contractor's personnel. Guns, knives, or other dangerous weapons shall not be allowed on campus. Smoking, alcohol and drugs are prohibited on the campus.
- 28. UNAUTHORIZED PERSONNEL:** Contractor's personnel shall not allow any unauthorized persons in school buildings (children, friends, or anyone else not authorized by School District or contractor).

**29. FORCE MAJEURE:** Neither the District nor the Contractor shall be liable for any excess costs if failure to perform the contract arises out of causes beyond the control and without the fault or negligence of either party. Such causes may include, but not restricted to acts of God or of the public enemy, acts of government in either its sovereign or contractual capacity, fires, floods epidemics, quarantine, restrictions, strikes, freight embargos, and unusually severe weather conditions; but in every case, the failure to perform is caused beyond the control of both the District and the Contractor, and without the fault or negligence of either of them.

**30. CONTRACT PROVISION TO REQUIRE CERTIFICATION AND COMPLIANCE CONCERNING ILLEGAL ALIENS:** By submission of this bid, the bidder as the prime contractor does hereby agree:

- a. To certify its compliance with the requirements of Chapter 14 of Title 8 of the S.C. Code of Laws regarding Unauthorized Aliens and Public Equipment;
- b. To provide Rock Hill School District with any documents required to establish such compliance upon request; and
- c. To register and participate and require agreement from subcontractors and sub-subcontractors to register and participate in the federal work authorization program to verify the employment authorization of all new employees, or to employ only workers who supply the documents required pursuant to S.C. Code 8-14-20(B)(2).

**31. CONTRACT DOCUMENT:** This solicitation document, any addendum(s), and record of negotiation(s) will become a part of the contract when awarded.

**32. STUDENT AND STAFF SAFETY:** The successful bidder shall be required to verify that criminal conviction inquiries/checks and pertinent criminal background inquiries/checks have been conducted on all of its employees and the subcontractors who may interact with staff and/or students during the performance of the awarded scope of work or who may have a need to enter District property related to the performance of the contract or who may have access to personal student or District personnel information.

All inquiries and background checks must be conducted annually or more frequently or as required by the District if the bidder has the potential to be in the presence of students. Student, parent, and participant information shall be kept confidential and shall not be disclosed for any purpose.

Persons who are identified as a Sex Offender or violators as defined by the South Carolina Code of Laws (Ann. 2006), Article 7, Sections 23-3-400 to 23-3-500 or statute or any other states statues and person who have been convicted of Violent Crimes as defined by the South Carolina Code of Laws, 1976, Section 16-160; are prohibited from entering any of the Rock Hill School District facilities at any time, including all District grounds and all District facilities. Persons employed by or under the direction of the bidder or any subcontractor who are under investigation or have been charged with

crimes and/or convicted of crimes against children or crimes of a sexual or violent nature shall not be allowed on District property.

The District may in its sole discretion terminate any existing contract for the failure by the awarded bidder, its subcontractors or any representative of the bidder or subcontract to observe this requirement or for any violation of this solicitation's requirements. No penalty or other costs shall be levied against the District as a result of its decision to terminate the contract or award.

In addition to the above obligations of successful bidder/awarded firm, all persons and contractor personnel having contact with students and/or any individual who enters onto District property may be subject to a national criminal background check at the discretion of the District prior to entry upon District property and the performance of any duties. All individuals entering District property shall be screened nationally for criminal sex offenses/sex offender status on automated equipment at school or site.

**33. RHSD3 COVID-19 Guidelines:** Due to Rock Hill School District Three COVID-19 guidelines, facilities access is limited to designated access points. Contractors are encouraged to follow recommended preventive measures according to guidelines available by the Centers for Disease Control (CDC) and/or South Carolina Department of Health and Environmental Control (SC DHEC). In particular, Contractors are responsible for ensuring onsite personnel have gloves and masks available, screening all onsite personnel daily using the District's COVID-19 Screening Form which includes symptomatic screening questions and a temperature check. If any of the listed symptoms are present or if the worker's temperature is greater than 100.4, the worker will not be allowed on site. Contractors agree to notify the District if any onsite personnel report symptoms.



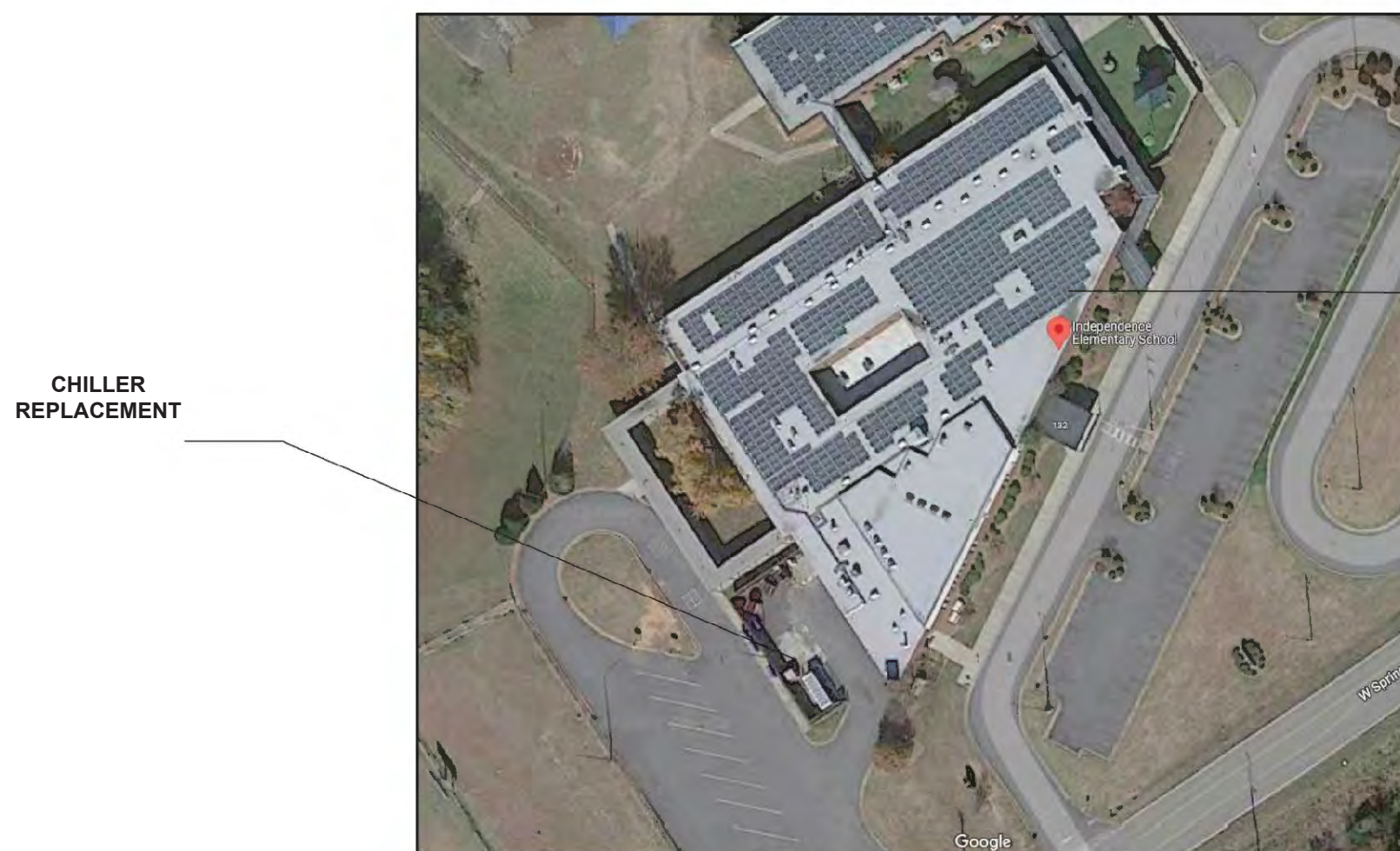
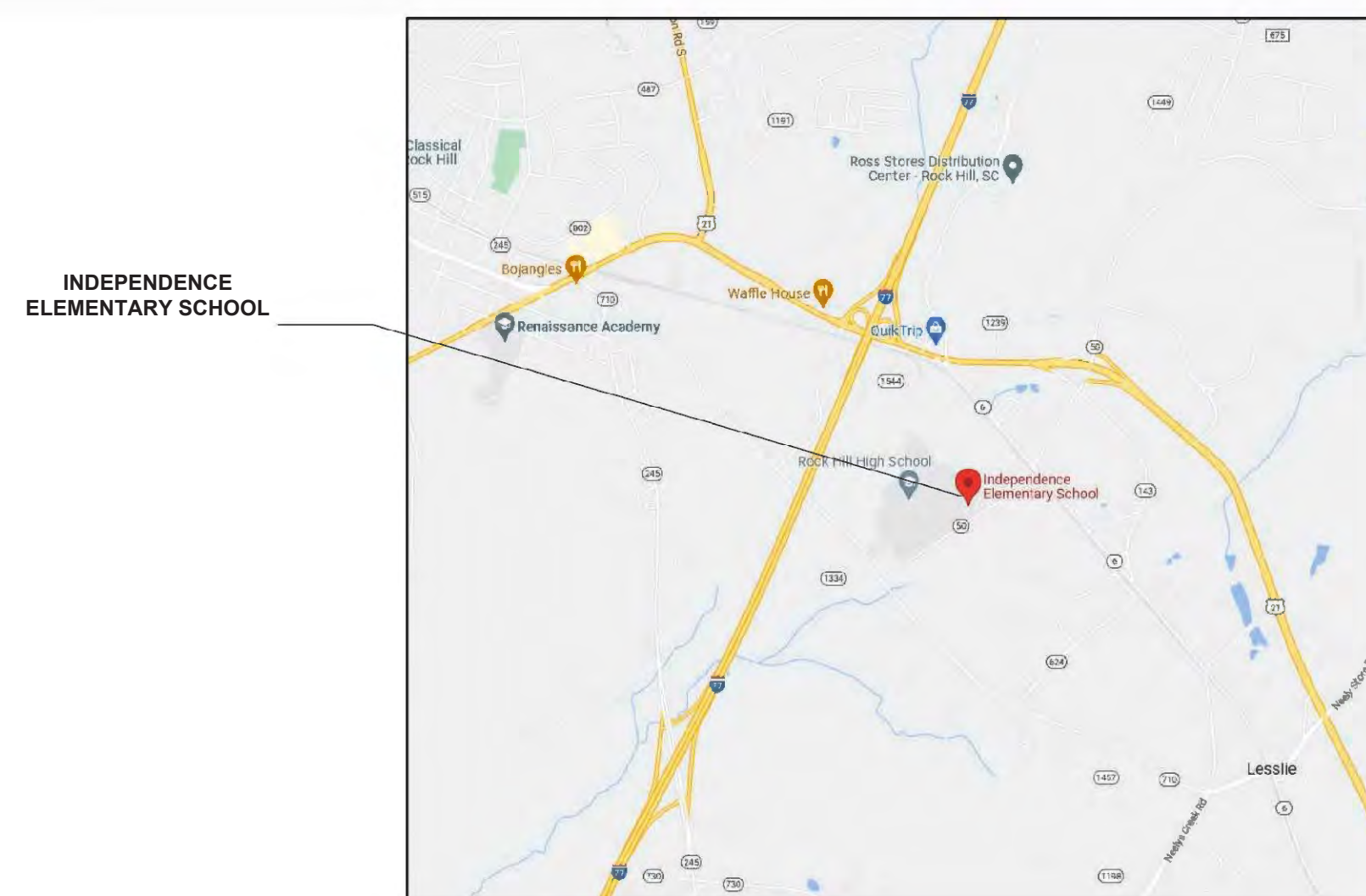


# Rock Hill Schools York School District 3 Independence Elementary School Chiller Replacement

Independence Elementary School  
132 W Springdale Road, Rock Hill, South Carolina 29730  
May 6, 2022

Bid No. 21-2245

## LOCATION MAP



INDEPENDENCE  
ELEMENTARY SCHOOL

N  
NORTH



## MECHANICAL - ELECTRICAL

### BUFORD GOFF & ASSOCIATES, INC.

1331 ELMWOOD AVENUE, SUITE 200  
COLUMBIA, SOUTH CAROLINA 29201  
TEL: (803) 254-6302  
FAX: (803) 771-6142

## BUILDING CODE ANALYSIS

1. INTERNATIONAL BUILDING CODE (IBC): 2018
2. INTERNATIONAL EXISTING BUILDING CODE (IEBC): 2018
3. INTERNATIONAL FIRE CODE (IFC): 2018
4. INTERNATIONAL ENERGY CONSERVATION CODE (IECC): 2009
5. INTERNATIONAL FUEL GAS CODE (IFGC): 2018
6. INTERNATIONAL MECHANICAL CODE (IMC): 2018
7. INTERNATIONAL PLUMBING CODE (IPC): 2018
8. NATIONAL ELECTRICAL CODE (NEC) (NFPA-70): 2017

### SEISMIC AND WIND DESIGN CRITERIA

SEISMIC DESIGN CATEGORY: C

RISK CATEGORY: III

DESIGN WIND SPEED: 119

S3957

## DRAWING INDEX

### GENERAL:

CS COVER SHEET

### MECHANICAL:

M001 SCHEDULES, NOTES, AND LEGENDS - MECHANICAL

M002 DETAILS - MECHANICAL

M100 CHILLER DEMOLITION - MECHANICAL

M200 CHILLER RENOVATION - MECHANICAL

M300 HOT AND CHILLED WATER PIPING SCHEMATIC - DEMOLITION AND RENOVATION

### ELECTRICAL:

E100 CHILLER RENOVATION PLAN - ELECTRICAL

Project Engineer:  
DER

Drawn By:  
LAM

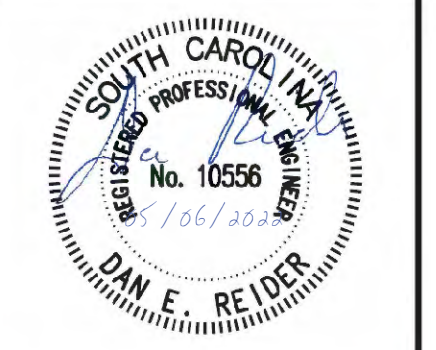
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Project  
Sheet Title  
COVER SHEET  
ROCK HILL SCHOOLS  
YORK COUNTY SCHOOL DISTRICT 3 -  
INDEPENDENCE ELEMENTARY SCHOOL -  
CHILLER REPLACEMENT

Buford  
& Goff  
& Associates, Inc.  
Engineers & Planners

1331 Elmwood Ave.  
Suite 200  
Columbia, SC 29201  
Phone: (803) 254 - 6302




























Sheet Number:

CS

Date: MAY 6, 2022  
Scale: As Noted  
BGA PROJECT NUMBER: 22084  
SUBMITTAL: BID SET



MECHANICAL ABBREVIATIONS			
ABV	ABOVE	EXT	EXTERNAL
AFF	ABOVE FINISH FLOOR	FPS	FEET PER SECOND
BACS	BUILDING AUTOMATION CONTROL SYSTEM	FT	FEET
B-1	BOILER NO.1	FLR	FLOOR
BHP	BRAKE HORSE POWER	HWS	HOT WATER SUPPLY
BOD	BOTTOM OF DUCT	HWR	HOT WATER RETURN
BOP	BOTTOM OF PIPE	IN	INCHES
BP-1	BOILER PUMP NO. 1	MER	MECHANICAL EQUIPMENT ROOM
CFM	CUBIC FEET PER MINUTE	MOD	MOTOR OPERATED DAMPER
CH-1	CHILLER NO.1	NO	NORMALLY OPEN
CLG	CEILING	NC	NORMALLY CLOSED
CO	CLEAN OUT	OC	ON CENTER
CT-1	COMPRESSION TANK NO. 1	P-1	PUMP NO.1
CWR	CHILLED WATER RETURN	PD	PRESSURE DROP
CWS	CHILLED WATER SUPPLY	PFD	PIPE TO FLOOR DRAIN
D	DRAIN	PH	PHASE
DTR	DUAL TEMPERATURE RETURN PIPING	SF	SQUARE FOOT
DTS	DUAL TEMPERATURE SUPPLY PIPING	UNO	UNLESS NOTES OTHERWISE
EFF	EFFICIENCY	V-1	VALVE No.1
ELECT	ELECTRICAL	VEL	VELOCITY
		VOLT	VOLTAGE
		2POS	TWO POSITION

MECHANICAL SYMBOL LEGEND			
	120V POWER IN J-BOX		FLANGE FITTING
	STRAINER		FLEXIBLE PIPE CONNECTION
	BALL VALVE		CONTROL PANEL NO. 1
	GATE VALVE		CONNECT NEW DUCT TO EXISTING
	GLOBE VALVE		TRIPLE DUTY VALVE
	PRESSURE REDUCING VALVE		GAUGE COCK
	RELIEF VALVE		PRESSURE GAUGE
	CIRCUIT SETTER		THERMOMETER
	BUTTERFLY VALVE		CONTROL WIRING
	THREE WAY VALVE		FLOW SENSOR/SWITCH
	TWO WAY VALVE		CLEANOUT
	SWING CHECK VALVE		
	UNION		
	POUNDS (OR NUMBER)		
	ECCENTRIC REDUCER		
	CONCENTRIC REDUCER		

MECHANICAL DEMOLITION NOTES	
1. DRAWINGS SHOW GENERAL INTENT OF DEMOLITION. QUANTITIES, LOCATIONS, SIZES AND EQUIPMENT ARE SHOWN TO INDICATE TYPE OF SYSTEM INSTALLED AND DOES NOT NECESSARILY REPRESENT EXACT CONDITIONS. CONTRACTOR SHALL FIELD VERIFY BEFORE BIDDING.	
2. DEMOLITION OF EQUIPMENT, SYSTEMS, AND COMPONENTS SHALL INCLUDE ALL SUPPORTS, PADS, HANGERS, INSULATION, CONTROLS, STARTERS, ACCESSORIES, AND APPURTENANCES NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM.	
3. WHEN PARTIAL DEMOLITION OF A SYSTEM IS INDICATED, THE PART OF THE SYSTEM SHOWN TO REMOVED SHALL BE REMOVED TO THE ACTIVE MAIN OF BRANCH IF NOT REQUIRED FOR THE INSTALLATION OF THE NEW SYSTEM. THE ACTIVE MAIN OF BRANCH SHALL BE REPAIRED TO MATCH A NEW INSTALLATION AS PRACTICAL. IF SYSTEM IS INSULATED, INSULATION SHALL BE PATCHED AND FINISHED REPAIR (IE: VAPOR BARRIER, COATING, ETC.)	

HEAT TAPE SCHEDULE									
HT #	SYSTEM	TYPE **	AVG. PIPE SIZE(b)	W/FT	PIPE LENGTH (a)	LENGTH MULT.	ELECT.		REMARKS
							WATTS*	VOLT/PH	
HT #1	CHILLED WATER	FP	6	5	20	1.0	100	120/1	
HT #2	CHILLED WATER	FP	6	5	20	1.0	100	120/1	
* WATTAGE IS APPROXIMATE. INSTALLING CONTRACTOR SHALL COORDINATE EXACT WATTAGE WITH ELECTRICAL CONTRACTOR.						** FP - FREEZE PROTECTION TM - TEMPERATURE MAINTENANCE (a) FEET (b) INCHES			

4/01

S3652

PUMP SCHEDULE (ORIGINAL)												
PUMP #	LOCATION	SERVICE	TYPE	GPM	HEAD FT	RPM	MIN EFF	HP	ELECT VOLT/PH	MANUFACTURER AND MODEL	REMARKS	
P-1	MECH. RM.	CHILLED WATER	END SUCTION	480	35	—	—	7.5	480/3	TACO		

4/97

S3350

PUMP SCHEDULE (NEW)													
PUMP #	LOCATION	SERVICE	TYPE	GPM	HEAD FT	RPM	MIN EFF	MAX. WEIGHT #	MAX HP		ELECT VOLT/PH	MANUFACTURER AND MODEL	REMARKS
									BHP(a)	HP			
CHILLER PUMP	MECH ROOM	CHILLER	END SUCTION	480	35	1800	67.7	400	6.4	7.5	460/3	B&G 4x4x9.5B	
(a) MAX BHP AT OPERATING CONDITIONS													

9/15

S3350

AIR COOLED CHILLER SCHEDULE (OWNER PURCHASE)																				
CHILLER #	TONS	FANS		COMPRESSOR		OUTDOOR DB T	CHILLED WATER					MAXIMUM SIZE (b)			MAX WEIGHT #	ELECTRICAL			MANUFACTURER AND MODEL	REMARKS
		FLA	NO	RLA	NO		GPM		PD(a)	ENT T	LVG T	L	W	H		MCA	MOCP	VOLT/PH		
							DESIGN	MIN												
CHILLER NO.1	195.8	4.0	12	51	6	95	467.3	229.8	18.9	54	44	275.6	88.7	94.4	12,000	374	400	460/3	YORK YLAA 0200 HE	①②
(a) FEET WG ①NON-FUSED DISCONNECT SWITCH (b) INCHES ②R410A REFRIGERANT																				

05/20

S3153

Project Engineer:  
DER

Drawn By:  
LAM

Revisions:	
No. _____	Date _____
No. _____	Date _____
No. _____	Date _____
No. _____	Date _____
No. _____	Date _____
No. _____	Date _____



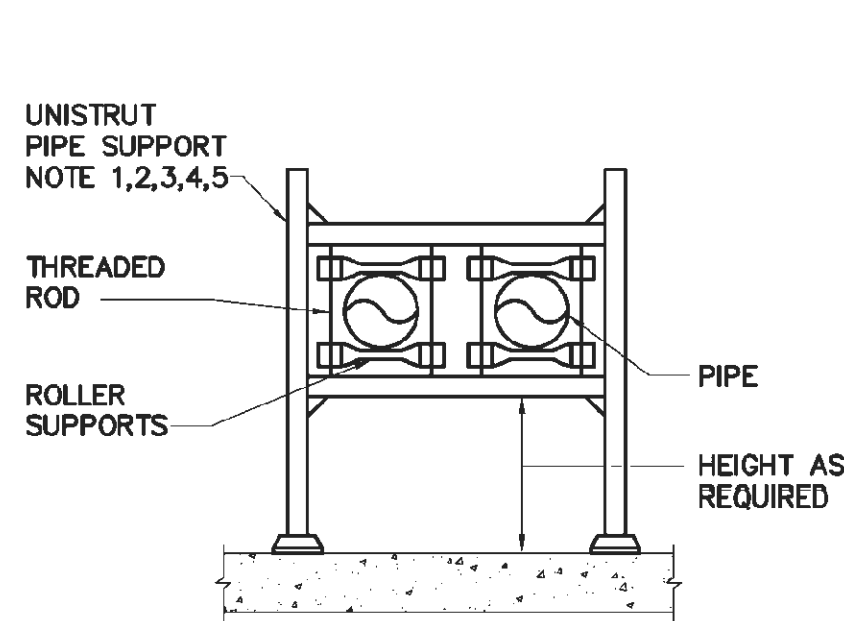
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Project  
ROCK HILL SCHOOLS  
YORK COUNTY SCHOOL DISTRICT 3 -  
INDEPENDENCE ELEMENTARY SCHOOL -  
CHILLER REPLACEMENT  
Sheet Title  
LEGENDS, NOTES AND SCHEDULES -  
MECHANICAL

Buford  
Goff  
& Associates, Inc.  
Engineers & Planners  
  
1331 Elmwood Ave.  
Suite 200  
Columbia, SC 29201  
Phone: (803) 254 - 6302

Sheet Number:  
  
M001  
  
Date: MAY 6, 2022  
Scale: As Noted  
BGA PROJECT NUMBER: 22084  
SUBMITTAL: BID SET



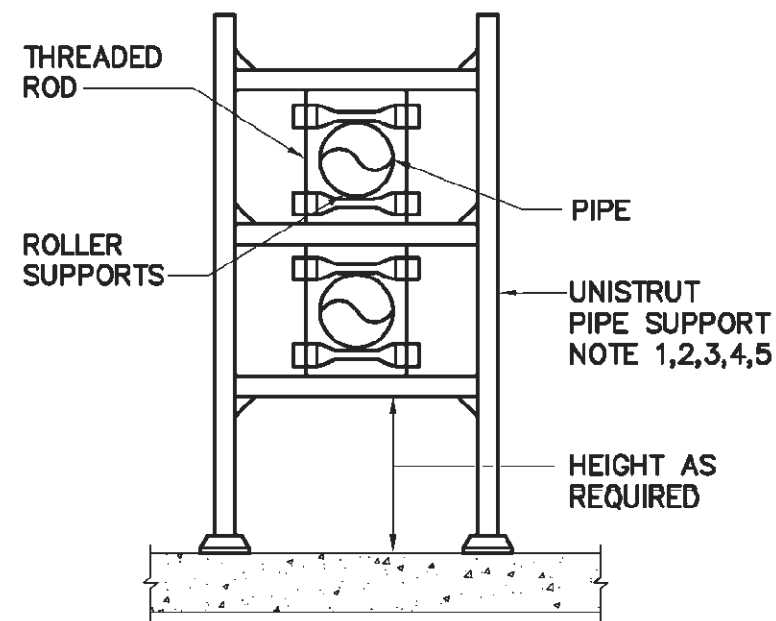
TYPE 1 - LOW SUPPORT

NOTES:

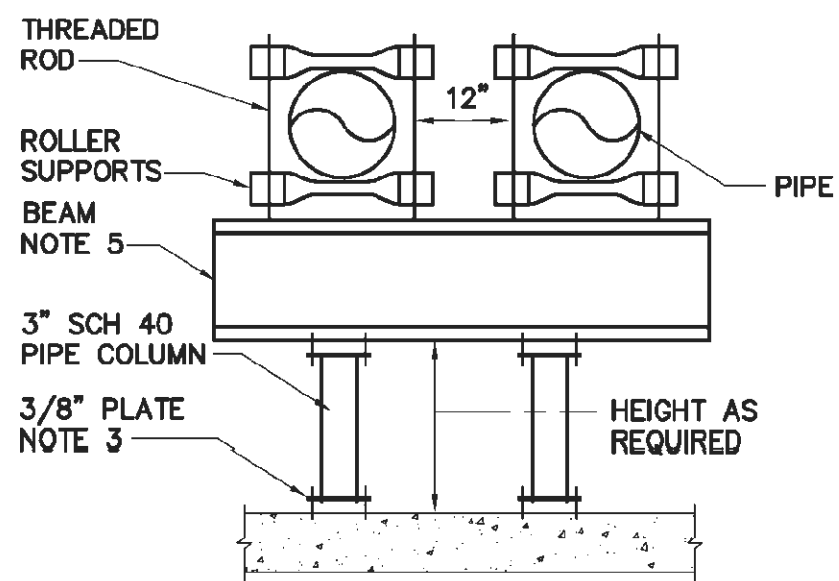
1. COORDINATE EXACT HEIGHTS AND WIDTHS OF SUPPORTS WITH EXISTING CONDITIONS AND CHILLER.
2. PROVIDE HOT DIPPED GALVANIZED MATERIALS.
3. PIPING TO BE SIDE BY SIDE OR STACKED IF NECESSARY.
4. SEE SPECIFICATIONS FOR SUPPORT REQUIREMENTS.
5. SUPPORTS SHALL PROVIDE ADJUSTMENT FOR A LEVEL INSTALLATION OF PIPE.

CHILLED WATER PIPING SUPPORT (OUTDOOR) DETAIL - TYPE 1

NOT TO SCALE



TYPE 2 - LOW SUPPORT (STACKED)



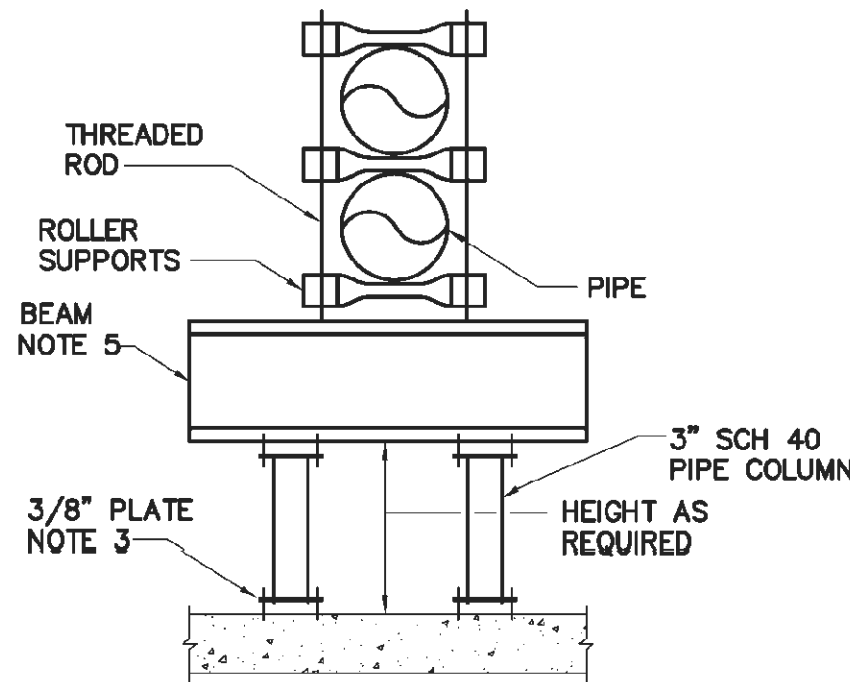
TYPE 1 - LOW SUPPORT

NOTES:

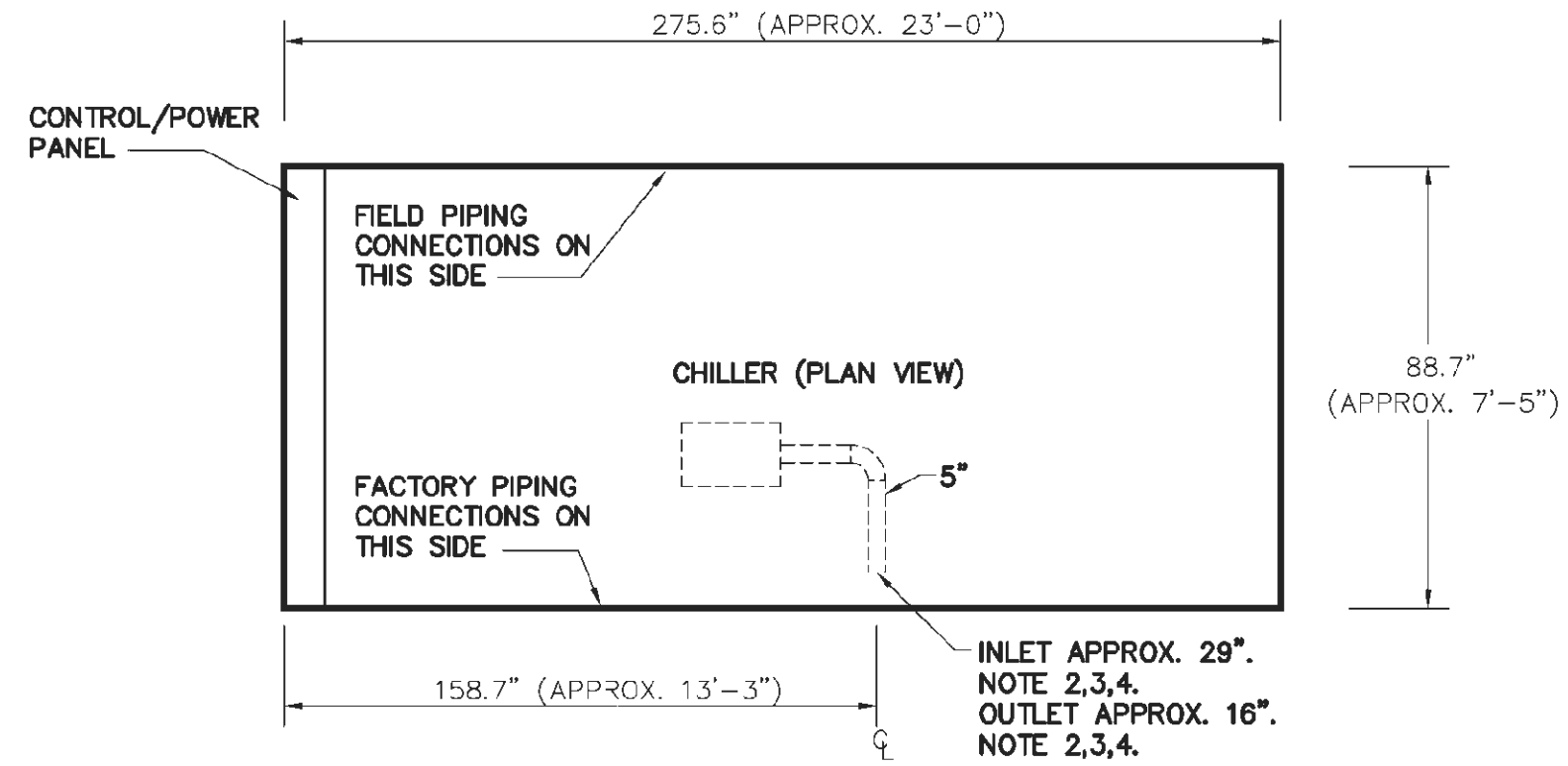
1. COORDINATE EXACT HEIGHTS AND WIDTHS OF SUPPORTS WITH EXISTING CONDITIONS AND CHILLER.
2. PROVIDE HOT DIPPED GALVANIZED MATERIALS OR STEEL WITH METAL PRIMER AND TWO COATS OF PAINT.
3. PLATE AT TOP AND BOTTOM OF PIPE COLUMN, 6"x6" W/ 4 BOLT HOLES. 1/2" BOLTS MIN.
4. PIPING SUPPORTED ON TOP OF THE BEAM SHALL HAVE ROLLER SUPPORTS.
5. MINIMUM 6" FLANGE.
6. PIPING TO BE SIDE BY SIDE OR STACKED IF NECESSARY.

CHILLED WATER PIPING SUPPORT (OUTDOOR) DETAIL - TYPE 2

NOT TO SCALE



TYPE 2 - LOW SUPPORT (STACKED)

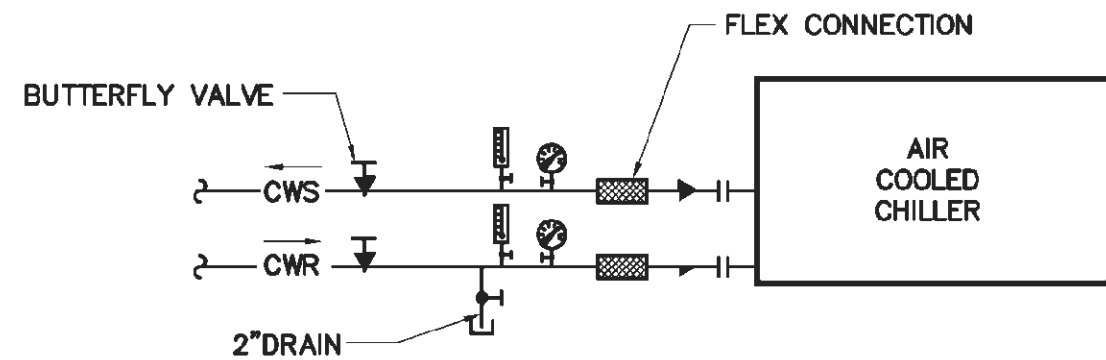


NOTES:

1. SEE CHILLER SUBMITTAL IN SPECIFICATIONS FOR DETAILED INFORMATION.
2. ELEVATION IS TO PIPE  $\phi$  ABOVE CHILLER BASE.
3. THE CHILLER INLET PIPING (90, 45, AND FLANGE) AND OUTLET PIPING (90, 45, AND FLANGE) NEED TO BE ROTATED FROM THE FACTORY ORIENTATION TO THE FIELD CONNECTION SIDE OF THE CHILLER. THIS REQUIRES THE SUPPLY PIPING AND RETURN PIPING PROVIDED WITH THE CHILLER BE SWAPPED. SEE CHILLER CUTSHEET IN THE SPECIFICATIONS. THE ABOVE PIPING IS CONNECTED TO THE CHILLER VIA VICTAULIC CONNECTIONS.
4. CHILLER PIPING CONNECTION IS VICTAULIC.

CHILLER CONFIGURATION

NOT TO SCALE

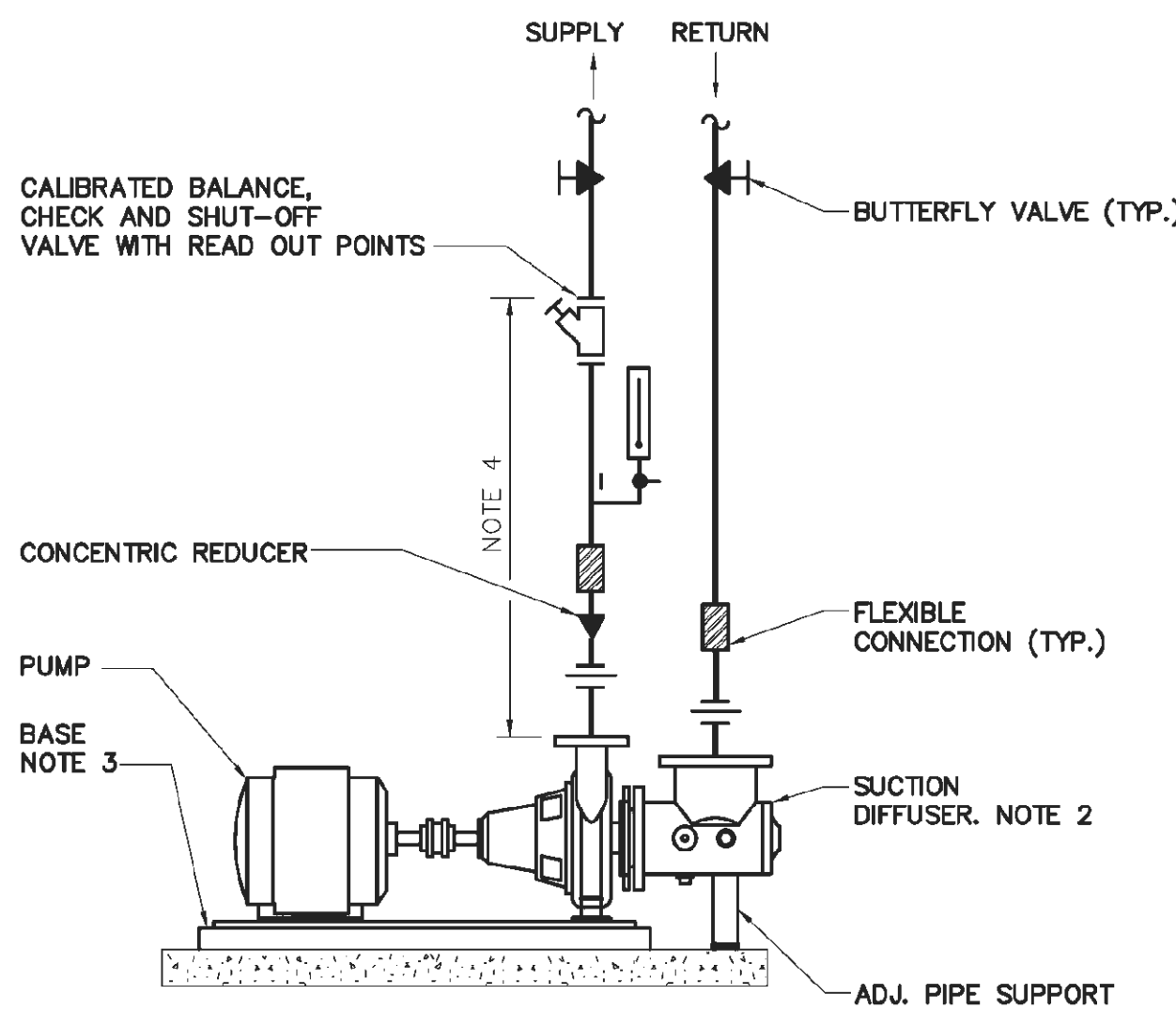


NOTES:

1. HEAT TAPE ALL OUTDOOR PIPE.
2. PROVIDE FLOW SWITCH AS RECOMMENDED BY MANUFACTURER.

AIR COOLED CHILLER PIPING

3152 NOT TO SCALE 1/19

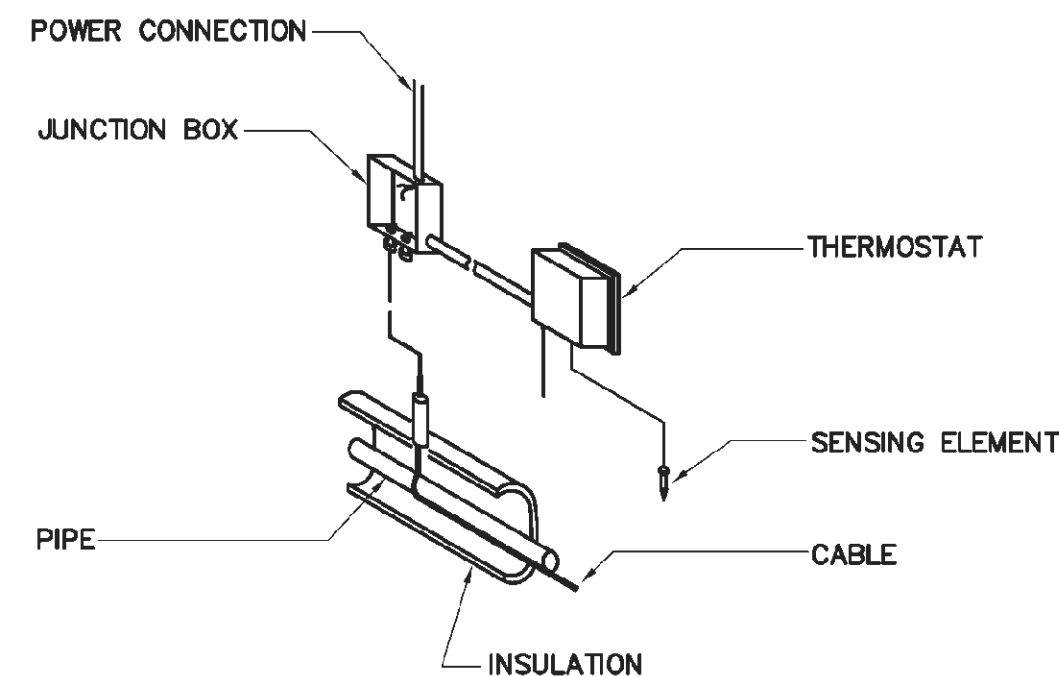


NOTES:

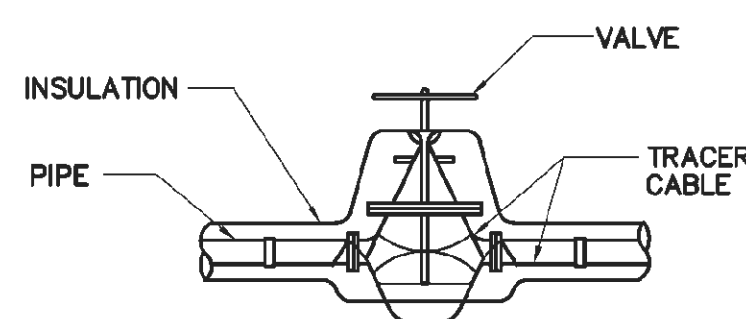
1. ANCHOR AND GROUT BASE.
2. SUCTION DIFFUSER INLET TO BE LINE SIZE. SUCTION DIFFUSER OUTLET TO BE PUMP SUCTION SIZE.
3. PROVIDE MANIFOLD PRESSURE GAUGE ASSEMBLY.
4. FIVE (5) PIPE DIAMETERS (MINIMUM).

PUMP

3200A NOT TO SCALE 08/19



CONTROL INSTALLATION



NOTE: FORM LOOP & WRAP CABLE AROUND VALVE BODY AS RECOMMENDED BY CABLE MANUFACTURER

TYPICAL VALVE TRACING PATTERN

FREEZE PROTECTION CABLE DETAIL

3450 NOT TO SCALE 5/10

Project Engineer:  
DER

Drawn By:  
LAM

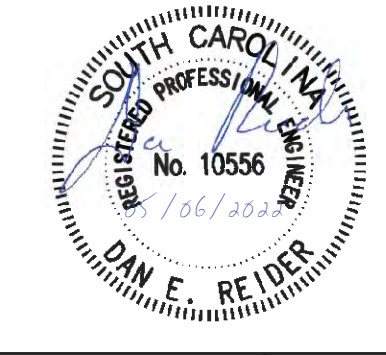
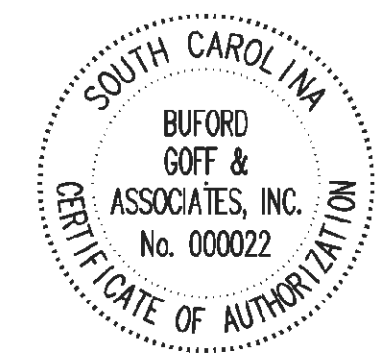
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Project  
ROCK HILL SCHOOLS  
YORK COUNTY SCHOOL DISTRICT 3 -  
INDEPENDENCE ELEMENTARY SCHOOL -  
CHILLER REPLACEMENT  
Sheet Title  
DETAILS - MECHANICAL

Buford  
Goff  
& Associates, Inc.  
Engineers & Planners  
1331 Elmwood Ave.  
Suite 200  
Columbia, SC 29201  
Phone: (803) 254 - 6302

Sheet Number:

M002

Date: MAY 6, 2022  
Scale: As Noted  
BGA PROJECT NUMBER: 22084  
SUBMITTAL: BID SET





A CHILLER IN FENCED AREA  
SCALE: NTS



B RIGHT HAND SIDE OF CHILLER  
SCALE: NTS



C CHILLED WATER PIPING TO BELOW GRADE  
SCALE: NTS



D TRANSFORMER  
SCALE: NTS

- DEMOLITION NOTES
- 01

REMOVE CHILLER, CONTROLS, SUPPORTS AND ACCESSORIES.
- 02

REMOVE PIPING, INSULATION, SUPPORTS AND ACCESSORIES TO ELEVATION REQUIRED TO INSTALL NEW PIPING.
- 03

REMOVE HEAT TRACING, CONTROLS AND ACCESSORIES.
- 04

REMOVE AND REPLACE CHILLER PUMP.
- 05

VERIFY ORIENTATION OF SUPPLY AND RETURN PIPING PRIOR TO DEMOLITION.

TEST AND BALANCE NOTES

1

PRIOR TO ANY DEMOLITION WORK, PROVIDE A TEST AND BALANCE REPORT, INCLUDING FLOWS, AT THE CHILLER PUMP. SUBMIT REPORT TO ENGINEER.

2

AFTER THE NEW CHILLER IS INSTALLED, SET FLOWS FOR NEW CHILLER. SUBMIT REPORT TO ENGINEER.

Project Engineer:  
DER

Drawn By:  
LAM

Revisions:

No.

Date

No.

Date

No.

Date

No.

Date

No.

Date

No.

Date

ROCK HILL SCHOOLS

YORK COUNTY DISTRICT THREE

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SOUTH CAROLINA

BUFORD GOFF & ASSOCIATES, INC.

No. 000022

CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA

REGISTERED PROFESSIONAL ENGINEER

No. 10556

1/06/2013

DAN E. REIDER

Project

ROCK HILL SCHOOLS  
YORK COUNTY SCHOOL DISTRICT 3 -  
INDEPENDENCE ELEMENTARY SCHOOL -  
CHILLER REPLACEMENT

Sheet Title

CHILLER - DEMOLITION PLAN - MECHANICAL

Buford Goff & Associates, Inc.

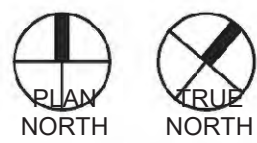
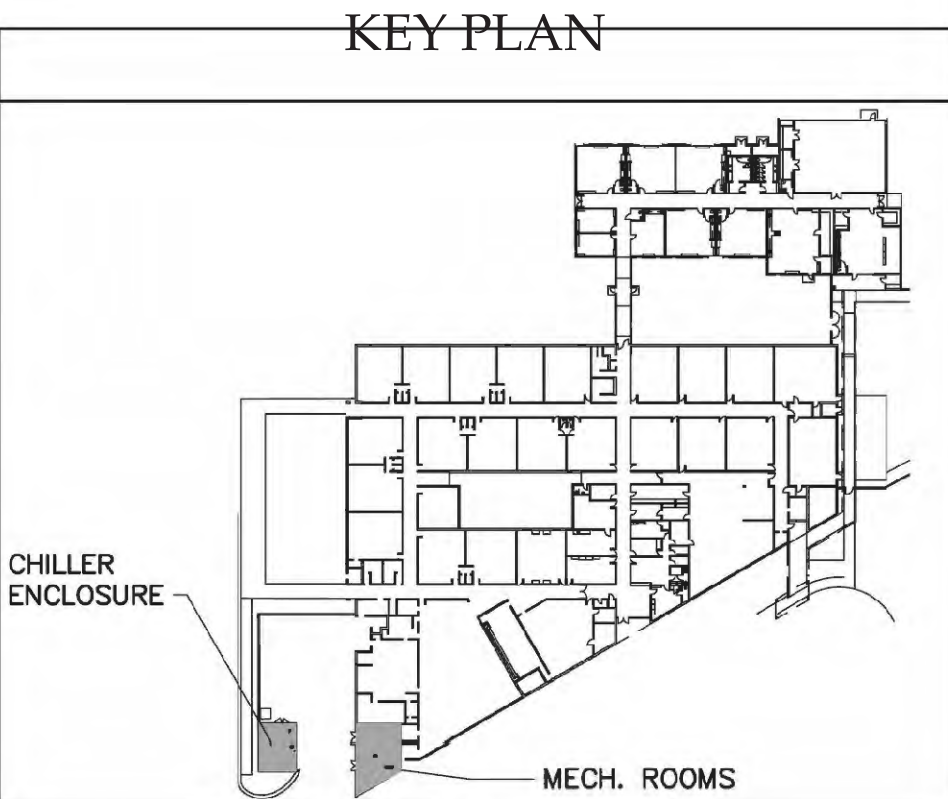
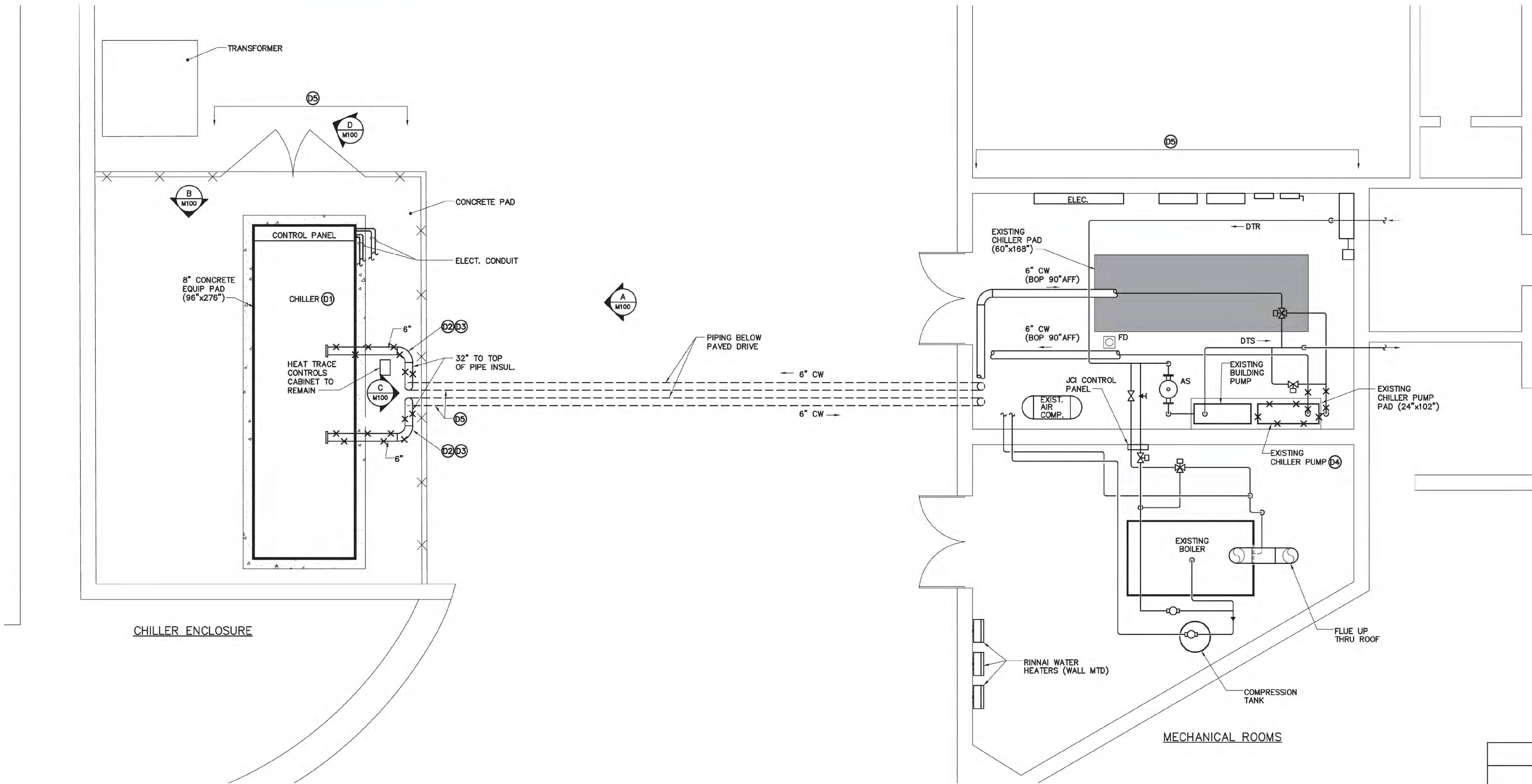
Engineers & Planners

1331 Elmwood Ave.  
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Columbia, SC 29201  
Phone: (803) 254 - 6302

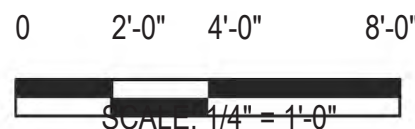
Sheet Number:

M100

Date: MAY 6, 2022  
Scale: As Noted  
BGA PROJECT NUMBER: 22084  
SUBMITTAL: BID SET



CHILLER - DEMOLITION  
SCALE: 1/4" = 1'-0"



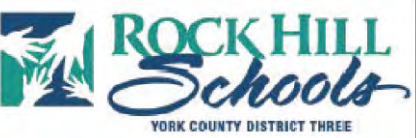


Project Engineer:  
DER

Drawn By:  
LAM

Revisions:

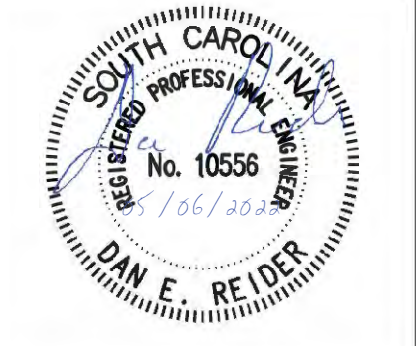
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Project  
Sheet Title

ROCK HILL SCHOOLS  
YORK COUNTY SCHOOL DISTRICT 3 -  
INDEPENDENCE ELEMENTARY SCHOOL -  
CHILLER REPLACEMENT

CHILLER - RENOVATION PLAN - MECHANICAL

**Buford Goff**  
& Associates, Inc.  
Engineers & Planners

1331 Elmwood Ave.  
Suite 200  
Columbia, SC 29201  
Phone: (803) 254 - 6302

Sheet Number:

**M200**

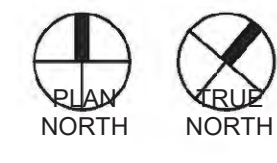
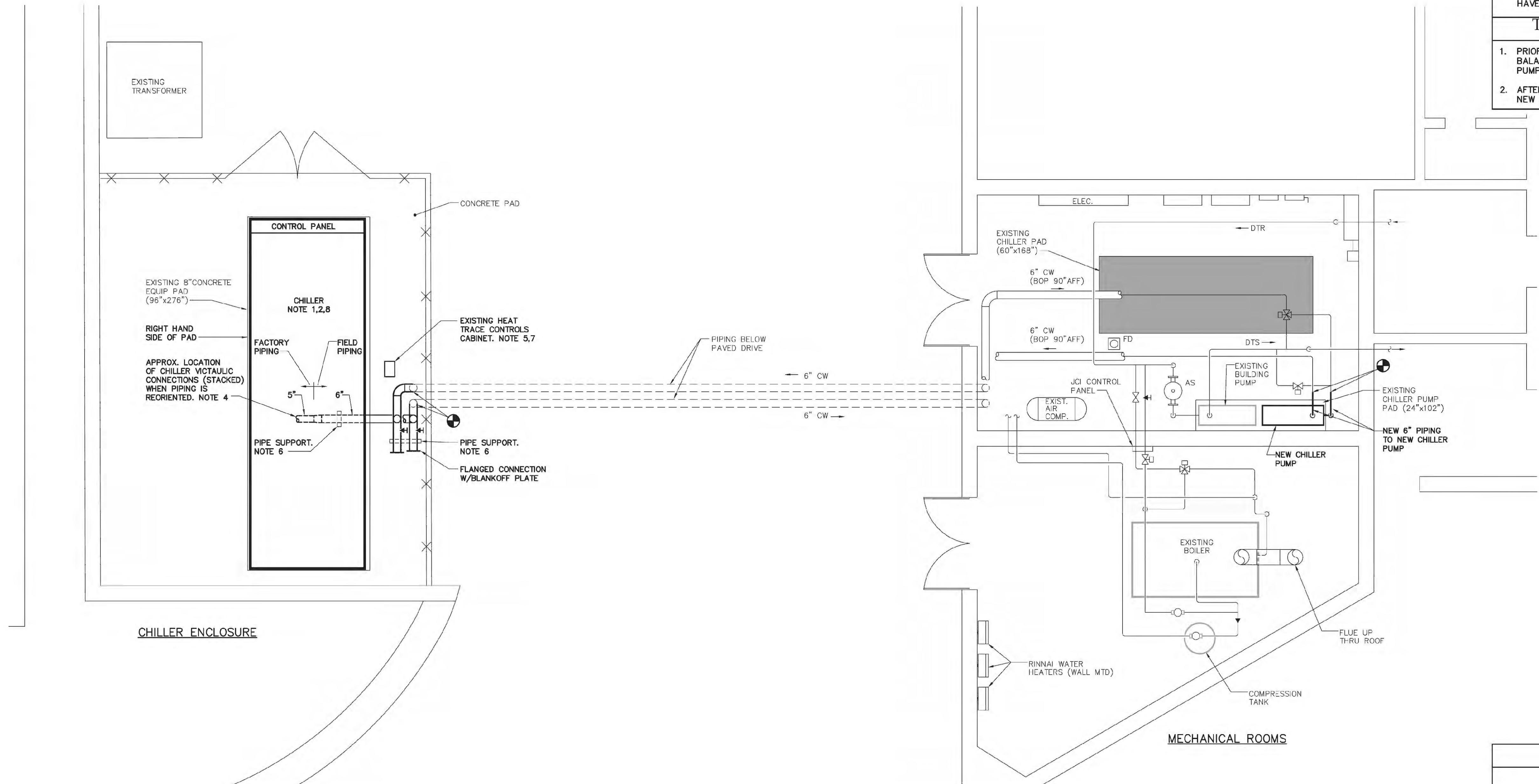
Date: MAY 6, 2022  
Scale: As Noted  
BGA PROJECT NUMBER: 22084  
SUBMITTAL: BID SET

## RENOVATION NOTES

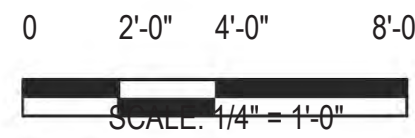
- OWNER IS PRE-PURCHASING A NEW 200 TON CHILLER (SEE EQUIPMENT SCHEDULE AND SPECIFICATIONS). DELIVERY IS ESTIMATED TO BE IN EARLY JUNE. THE CONTRACTOR SHALL COMMUNICATE WITH THE DISTRICT AND EQUIPMENT SUPPLIER TO GET A FIRM DELIVERY DATE AND TIME AS SOON AS IT BECOMES AVAILABLE. ONCE THE CHILLER ARRIVES ON SITE, THE CONTRACTOR SHALL INSPECT THE CHILLER TO DETERMINE IF THERE IS ANY OBVIOUS DAMAGE AND, IF NOT, TAKE FULL RESPONSIBILITY FOR UNLOADING THE CHILLER AND EITHER PERMANENTLY SET IN PLACE IF THE CHILLER PAD IS PREPARED OR TEMPORARILY SET THE CHILLER IN A LOCATION ACCEPTABLE TO THE OWNER.
- THE CHILLER SHALL BE UNLOADED BY THE CONTRACTOR ON THE SAME DAY IT ARRIVES ON SITE.
- LOCATE THE CHILLER AS FAR TO THE RIGHT HAND SIDE OF THE CHILLER PAD AS PRACTICAL.
- THE CHILLER AS SHIPPED, HAS THE VICTUALIC PIPING CONNECTION TO THE RIGHT HAND SIDE OF THE CHILLER (AS VIEWED FROM THE CONTROL PANEL). THE CHILLER MANUFACTURER ALLOWS FOR THESE CONNECTION TO BE REORIENTED IN THE FIELD BY A CONTRACTOR. THESE CONNECTIONS SHALL BE REORIENTED BY THE CONTRACTOR. SEE CHILLER DETAIL.
- INSTALL NEW HEAT TRACE CONTROL IN EXISTING CABINET.
- SEE CHILLED WATER PIPING SUPPORT (OUTDOOR) DETAIL. EITHER STYLE OF PIPE SUPPORT MAY BE USED.
- HEAT TRACE ALL NEW PIPING. PROVIDE ONE CIRCUIT FOR ALL INLET PIPING AND A SECOND CIRCUIT FOR ALL OUTLET PIPING.
- COORDINATE START UP WITH THE CHILLER MANUFACTURER WHEN ALL SYSTEMS (PUMPS, CONTROLS, FLOW RATES, ETC) HAVE BEEN CHECKED OUT BY THE CONTRACTOR.

## TEST AND BALANCE NOTES

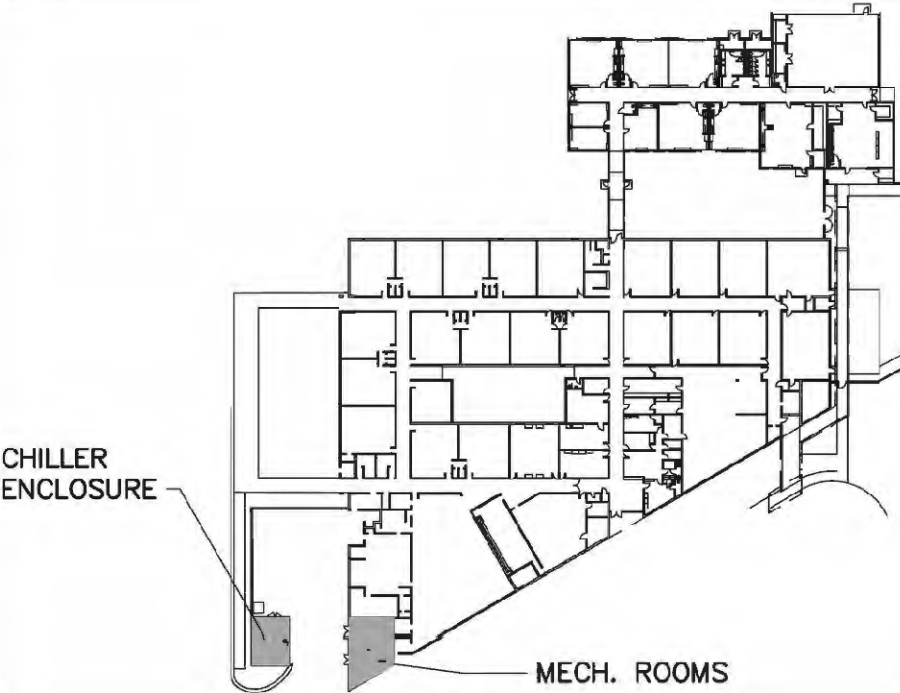
- PRIOR TO ANY DEMOLITION WORK, PROVIDE A TEST AND BALANCE REPORT, INCLUDING FLOWS, AT THE CHILLER PUMP. SUBMIT REPORT TO ENGINEER.
- AFTER THE NEW CHILLER IS INSTALLED, SET FLOWS FOR NEW CHILLER. SUBMIT REPORT TO ENGINEER.



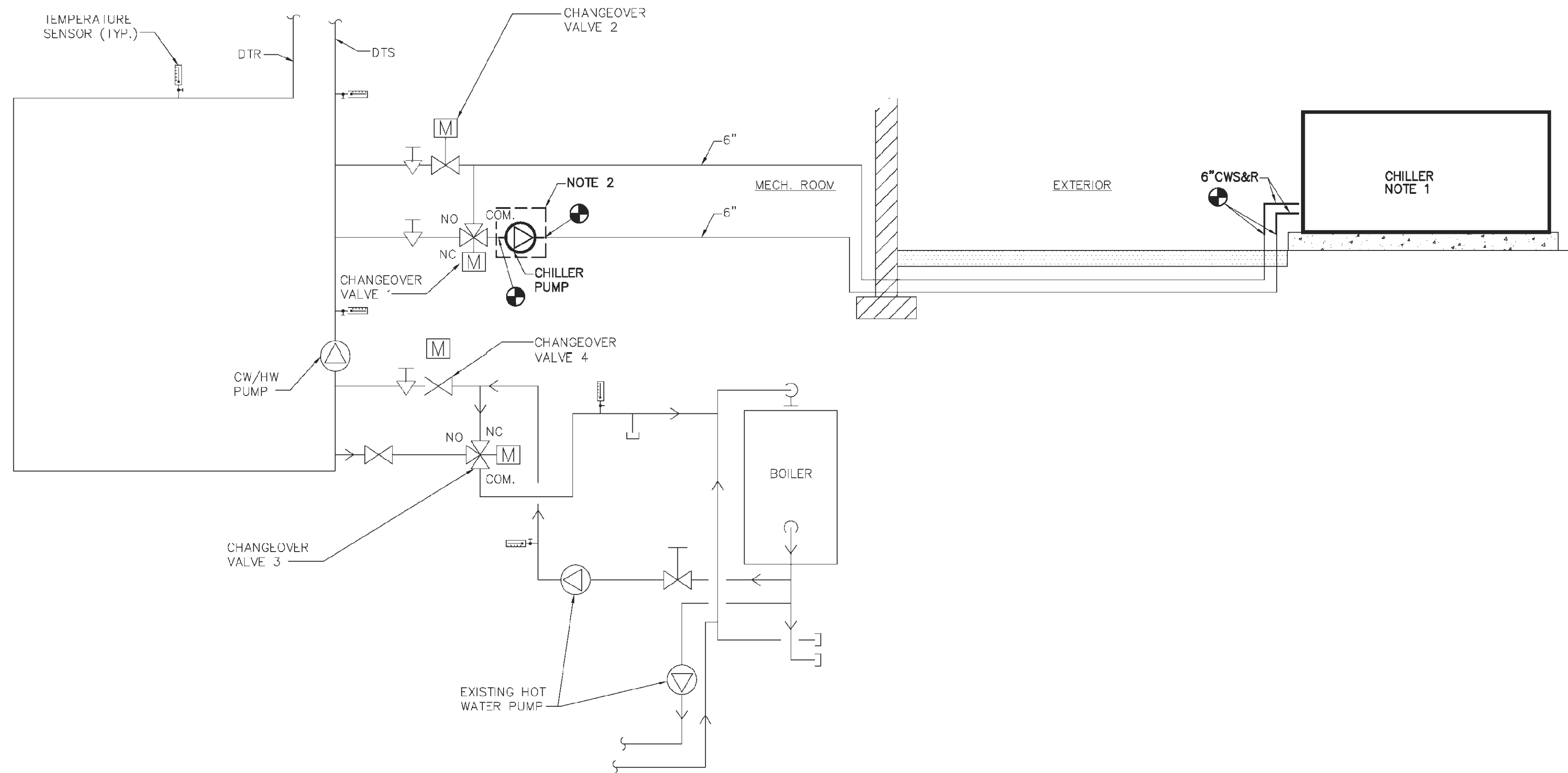
**CHILLER - RENOVATION**  
SCALE: 1/4" = 1'-0"



## KEY PLAN

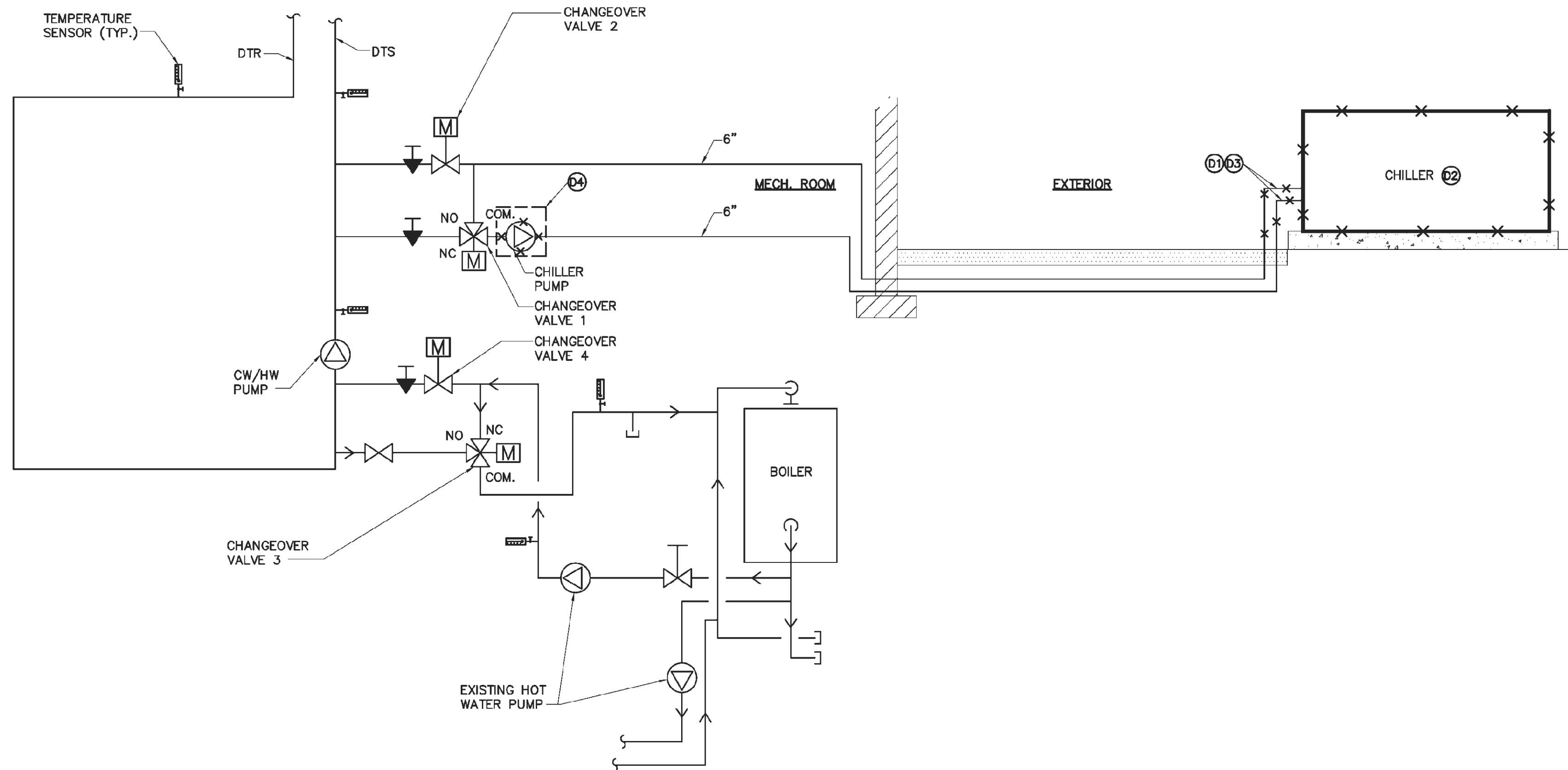






HOT AND CHILLED WATER PIPING SCHEMATIC - RENOVATION

NOT TO SCALE



HOT AND CHILLED WATER PIPING SCHEMATIC - DEMOLITION

NOT TO SCALE


DEMOLITION NOTES
01 REMOVE PIPING, INSULATION, SUPPORTS AND ACCESSORIES IN CHILLER YARD. SEE PLANS.
02 REMOVE EXISTING CHILLER, CONTROLS, SUPPORTS AND ACCESSORIES.
03 REMOVE HEAT TRACING.
04 REMOVE CHILLER PUMP AND REPLACE WITH NEW PUMP.

RENOVATION NOTES
1. PROVIDE NEW PIPING TO CHILLER. SEE PLANS AND DETAILS.
2. PROVIDE NEW CHILLER PUMP. SEE DETAIL.


Project Engineer:  
DER


Drawn By:  
LAM

Revisions:  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_  
No. \_\_\_\_\_ Date \_\_\_\_\_

  
ROCK HILL SCHOOLS  
YORK COUNTY DISTRICT THREE

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BUFORD GOFF & ASSOCIATES, INC.  
No. 000022  
CERTIFICATE OF AUTHORIZATION

  
SOUTH CAROLINA  
DAN E. REIDER  
No. 10556  
10/6/2019



Project  
ROCK HILL SCHOOLS  
YORK COUNTY SCHOOL DISTRICT 3 -  
INDEPENDENCE ELEMENTARY SCHOOL -  
CHILLER REPLACEMENT

Sheet Title  
HOT AND CHILLED WATER SCHEMATIC -  
DEMOLITION AND RENOVATION

  
Buford Goff & Associates, Inc.  
Engineers & Planners  
  
1331 Elmwood Ave.  
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Phone: (803) 254 - 6302

Sheet Number:  
  
M300

Date: MAY 6, 2022  
Scale: As Noted  
BGA PROJECT NUMBER: 22084  
SUBMITTAL: BID SET

ELECTRICAL SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	20A, 125V, SPEC. GRADE GFCI RECEPTACLE WITH IN-USE TYPE WEATHER-PROOF, METALLIC, SURFACE BOX AND COVER.
	EXISTING 480/277V PANELBOARD

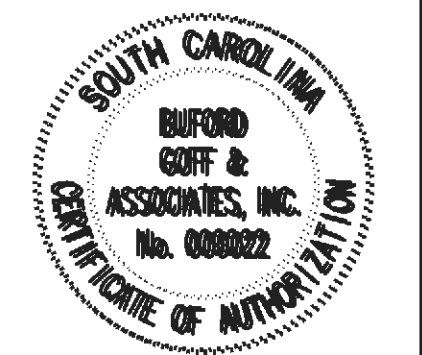
- KEYNOTES:**
- 1 DISCONNECT EXISTING CHILLER FEEDER (2 PARALLEL RUNS OF 3#4/0, #2 GND., 2-1/2" C.) AND RECONNECT FEEDER TO NEW CHILLER. PROVIDE NEW MATCHING FEEDER WIRE AND SEAL-TIGHT FLEX CONDUIT AS REQUIRED FOR RECONNECTION TO NEW CHILLER POWER FEEDER TERMINATION.
  - 2 REPLACE EXISTING CHILLER 500A, 3P CB IN PANEL MDP WITH NEW 400A, 3P CB WITH 400A TRIP.
  - 3 DISCONNECT EXISTING CHILLER PUMP FEEDER (3#12, #12GND., 1/2" C.) AND RECONNECT FEEDER TO NEW CHILLER PUMP. PROVIDE NEW MATCHING FEEDER WIRE AND SEAL-TIGHT FLEX CONDUIT AS REQUIRED FOR RECONNECTION TO NEW PUMP. EXISTING DISCONNECT SWITCH AND STARTER TO REMAIN.
  - 4 DISCONNECT (3) EXISTING 20A, 120V HEAT TAPE BRANCH CIRCUITS (2#12, #12GND., 3/4" C. EACH CKT.) AND RECONNECT BRANCH CIRCUITS TO NEW HEAT TRACING. PROVIDE NEW #12 WIRE AND 3/4" C. SEAL-TIGHT FLEX CONDUIT AS REQUIRED FOR CONNECTION TO NEW HEAT TRACING. REPLACE EXISTING DISCONNECT SWITCHES WITH NEW DISCONNECT SWITCHES (MATCH EXISTING).
  - 5 CONNECT NEW GFCI RECEPTACLE FROM ONE OF THE 20A, 120V HEAT TRACE CKTS.

Project Engineer:	ECW
Drawn By:	GMC
Revisions:	
No.	Date
No.	Date
No.	Date
No.	Date
No.	Date
No.	Date
No.	Date



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Project

Rock Hill Schools  
York County School District 3 -  
Independence Elementary School -  
Chiller Replacement

Sheet Title

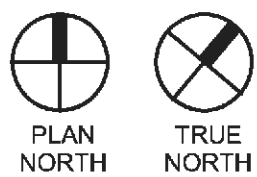
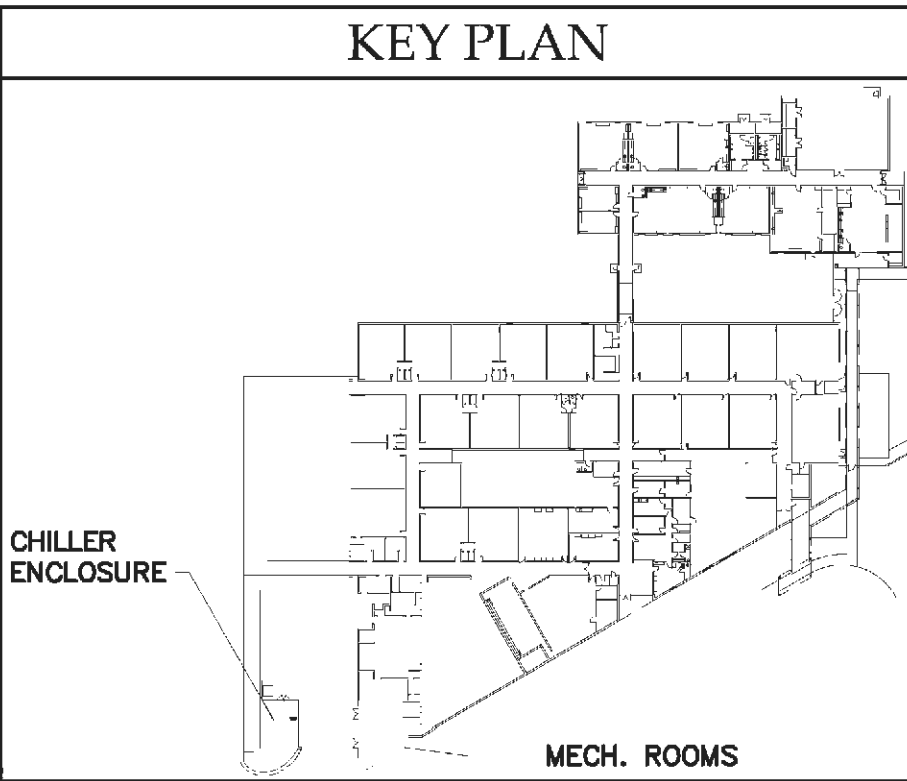
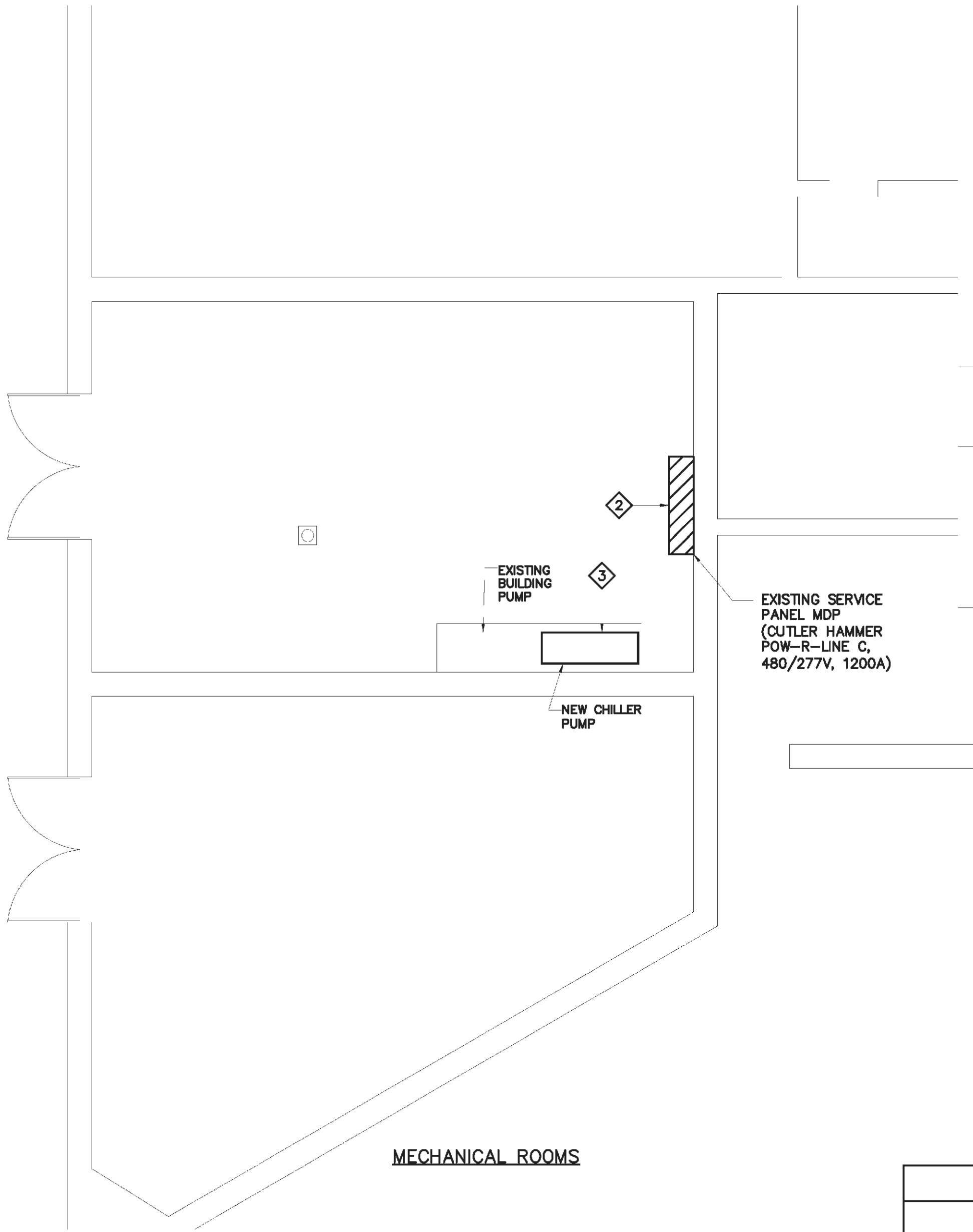
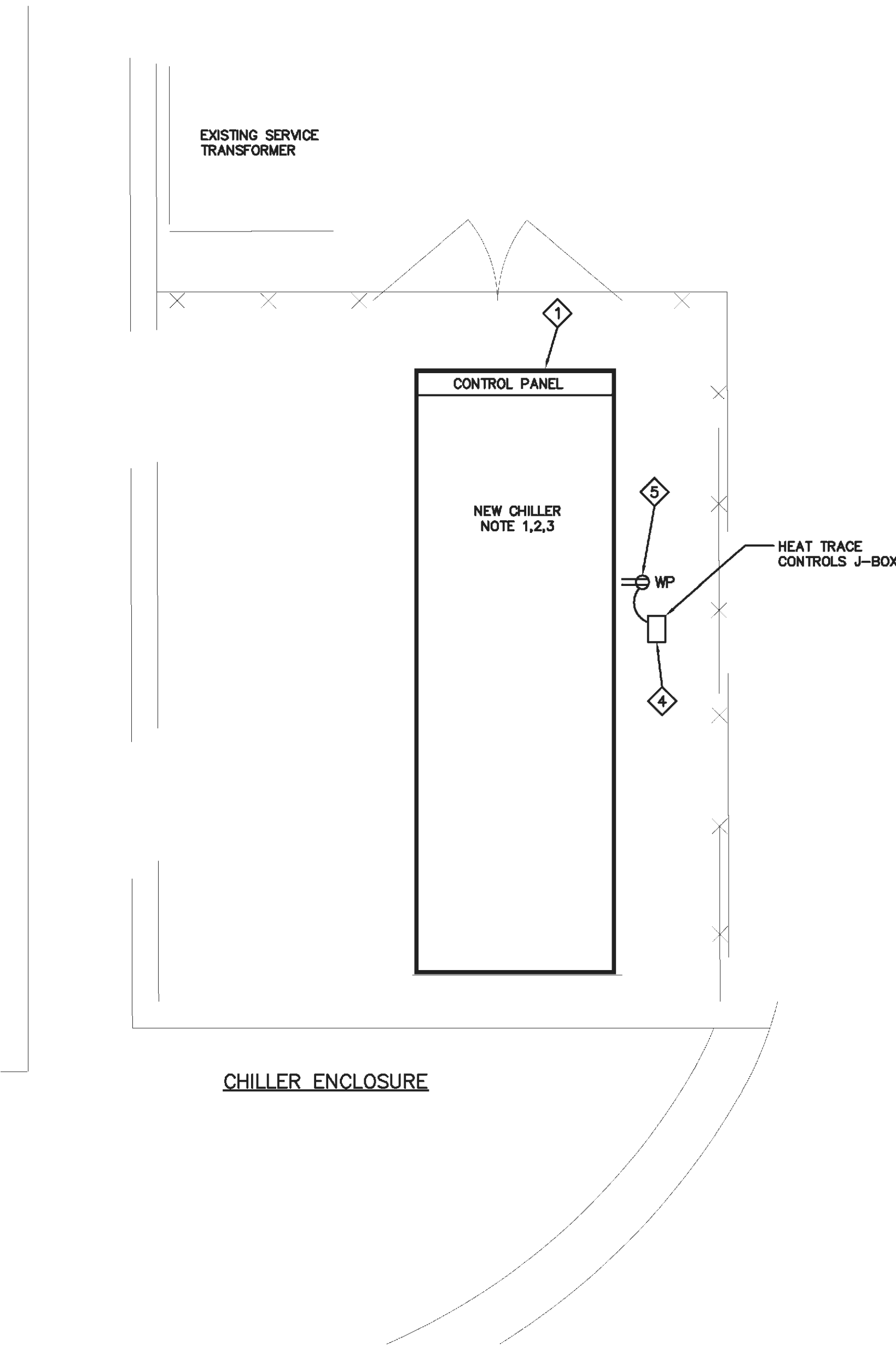
Chiller Renovation Plan - Electrical

**Buford Goff**  
& Associates, Inc.  
Engineers & Planners

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Columbia, SC 29201  
Phone: (803) 254 - 6302

Sheet Number:  
**E100**

Date: MAY 6, 2022  
Scale: As Noted  
BGA PROJECT NUMBER: 22084  
SUBMITTAL: BID SET



**CHILLER RENOVATION PLAN - ELECTRICAL**  
SCALE: 1/4" = 1'-0"

