Solicitation 1901-286

Williamson County Jail Renovations FY 2019

Bid Designation: Public

Williamson County, Texas

Bid 1901-286
Williamson County Jail Renovations FY 2019

Bid Number	1901-286
Bid Title	Williamson County Jail Renovations FY 2019
Expected Expenditure	**$1,500,000.00** (This price is expected - not guaranteed)
Bid Start Date	In Held
Bid End Date	Feb 6, 2019 3:00:00 PM CST
Question & Answer End Date	Feb 1, 2019 5:00:00 PM CST
Bid Contact	Blake Skiles Senior Purchasing Specialist 512-**943**-1478 blake.skiles@wilco.org
Contract Duration	**210 days**
Contract Renewal	Not Applicable
Prices Good for	**365 days**
Pre-Bid Conference	**Jan 25, 2019 9:00:00 AM CST** **Attendance is optional** **Location: Williamson County Sheriff's Department** **South Conference Room** **508 S. Rock Street** **Georgetown, TX 78626**
Bid Comments	**Williamson County is seeking a qualified firm to complete renovations at the Williamson County Jail as defined in the Project Manual.**

Item Response Form

Item	**1901-286--01-01 -** Total Proposal Price
Quantity	**1 each**
Unit Price	
Delivery Location	**Williamson County, Texas** No Location Specified **Qty** 1

Description
Total Proposal Price

Item	**1901-286--01-02 -** Please Attach All Documents To This Line
Quantity	**1 each**

Prices are not requested for this item.

Delivery Location **Williamson County, Texas**

No Location Specified

Qty 1

Description

Please Attach All Documents To This Line

PUBLIC ANNOUNCEMENT AND GENERAL INFORMATION

WILLIAMSON COUNTY PURCHASING DEPARTMENT
SOLICITATION NUMBER 1901-286
Williamson County Jail Renovations FY 2019

PROPOSALS MUST BE RECEIVED ON OR BEFORE:
Feb 6, 2019 3:00:00 PM CST

PROPOSALS WILL BE PUBLICLY OPENED:
Feb 6, 2019 3:00:00 PM CST

Notice is hereby given that Competitive Sealed Proposals for the above-mentioned construction services will be accepted by the Williamson County Purchasing Department. Williamson County uses BidSync to distribute and receive Proposals. Specifications for this RFCSP may be obtained by registering at www.bidsync.com.

Williamson County prefers and requests electronic submittal of this Proposal.

All electronic proposals must be submitted via: www.bidsync.com

Electronic Proposals are requested, however paper proposals will currently still be received, until further notice and may be mailed or delivered to the address listed below.

Respondents are strongly encouraged to carefully read this entire RFCSP.

All interested Respondents are invited to submit a Proposal in accordance with the Instructions and General Requirements, Proposal Format, Proposal Specifications, and Definitions, Terms and Conditions stated in this RFCSP.

Please note that a complete package must be submitted choosing one of the above two methods. Split packages where a partial submittal is received in paper and a partial submittal is received via BidSync will be considered "unresponsive" and will not be accepted or evaluated.

Williamson County will not accept any Proposals received after the submittal deadline, and shall return such Proposals unopened to the Respondent.

General Information:

- If mailed or delivered in person, Proposal and Proposal addenda are to be delivered in sealed envelope on or before the submittal deadline, as noted in the Public Announcement and General Information listed above for this RFCSP, to:

  Williamson County Purchasing Department
  Attn: **PROPOSAL NAME AND NUMBER**
  901 South Austin Avenue
  Georgetown, Texas 78626

  - Respondents should list the Proposal Number, Proposal Name, Name and Address of Respondent, and the Date of the Proposal opening on the outside of the box or envelope and note "Competitive Sealed Proposal Enclosed."
  - Respondent should submit one (1) original.
  - Williamson County will NOT be responsible for unmarked or improperly marked envelopes.
  - Williamson County will not accept any responsibility for Proposals being delivered by third party carriers.
  - Facsimile transmittals will NOT be accepted.

- Proposals will be opened publicly and the names of the offerors and any monetary Proposals made by the offerors, will be read aloud.

- All submitted questions with their answers will be posted and updated on www.bidsync.com.

- It is the Respondent's responsibility to review all documents in BidSync, including any Addenda that may have been added after the document packet was originally released and posted.

  - Any Addenda and/or other information relevant to the RFCSP will be posted on www.bidsync.com.

  - The Williamson County Purchasing Department takes no responsibility to ensure any interested Respondent has obtained any outstanding addenda or additional information.

Williamson County – Request for Competitive Sealed Proposal (RFCSP)

SECTION 1 - DEFINITIONS

Addendum/Addenda – means any written or graphic instruments issued by the County prior to the consideration of Proposals which modify or interpret the Proposal Documents by additions, deletions, clarifications, or corrections.

Agreement/Ensuing Agreement(s) – means the Successful Respondent may be required by the County to sign an additional Agreement containing terms necessary to ensure compliance with the RFCSP and the Respondent's Proposal. Such Ensuing Agreement(s) shall contain the Proposal specifications, terms and conditions that are derived from the RFCSP.

Contract – means this RFCSP and the Proposal of the Successful Respondent shall become a Contract between the Successful Respondent and the County once the Successful Respondent Proposal is properly accepted by the Williamson County Commissioners Court (sometimes referred to herein as the Commissioner's Court").

Commissioner's Court – means the Williamson County Commissioners Court.

County – means Williamson County, a political subdivision of the State of Texas.

Executive Summary – means the document submitted by Respondent that represents a concise summary of the contents of the Proposal. It does not include any information concerning costs.

Proposal Documents – means the Legal Notice, RFCSP including attachments, and any Addenda issued by the County prior to the consideration of any Proposals.

Proposal – means the complete, properly signed document, and ALL required forms and documentation listed in the proposal package which have been submitted in accordance with this RFCSP package. A Proposal submitted in accordance with this RFCSP is irrevocable during the specified time period for evaluation and acceptance of Proposals, unless a waiver is obtained from the Williamson County Purchasing Agent.

Respondent – means a person or entity who submits a Proposal in response to this RFCSP.

Request for Competitive Sealed Proposals (RFCSP) – means this document, together with the attachments thereto and any future Addenda issued by the County.

Successful Respondent– means the responsible Respondent who, in the County's sole opinion, submits the Proposal which is in the best interest of the County, taking into account factors identified herein, and to whom the County intends to award the Contract.

SECTION 2 - RESPONSE FORMAT AND SUBMISSION

2.1 INTRODUCTION

Each Proposal submitted in response to this RFCSP should clearly reference the numbered sections of this RFCSP that require a response. Failure to arrange the Proposal as requested may result in the disqualification of the Proposal.

Though there is not a page limit for Proposals, to save natural resources including paper, and to allow the County staff to efficiently evaluate all submitted Proposals, the County requests that Proposals be orderly, concise, but comprehensive in providing the requested information. Conciseness and clarity of content are emphasized and encouraged. If mailed or delivered in person, please limit additional, non requested information.

Please provide your Proposal response using:

A. 8 ½" x 11" pages, inclusive of any cover letter or supporting materials.

B. The least amount of plastic/laminate or other non-recyclable binding materials.

C. Single-sided printing.

Vague and general Proposals will be considered non-responsive, and may, at the County's sole discretion, result in disqualification. Proposals must be legible and complete. Failure to provide the required information may result in the disqualification of the Proposal. All pages of the Proposal should be numbered and the Proposal should contain an organized, paginated table of contents corresponding to the sections and pages of the Proposal.

2.2 ORGANIZATION OF PROPOSAL CONTENTS AND TABLE OF CONTENTS

Each Proposal should be submitted with a table of contents that clearly identifies and denotes the location of all enclosures of the Proposal. The table of contents should follow the RFCSP's structure as much as is practical.

Each Proposal should be organized in the manner described below:

A. Transmittal Letter. Please see Section 2.3, Transmittal Letter, for more information.

B. Table of Contents.

C. Executive Summary. Please see Section 2.4, Executive Summary.

D. Proposal Response to Criteria. (Please see the sections in this RFCSP package that list the Specifications & Cost Proposal, Experience and Qualifications, References, and Implementation Strategy to respond to our criteria in a clear and concise manner)

E. Price Sheet.

F. References: Identification of three (3) references within the last four (4) years, for which the Respondent is providing, or has provided, the goods and/or services (public sector) of the type requested in this RFCSP. Include the name, position/title, and telephone number of a contact person at each entity.

G. Conflict of Interest Questionnaire.

H. Proposal Affidavit (Signature Page).

I. Attach your entities sample Contract, if applicable, for the County's review and consideration. This should include any additional terms or conditions. The County is not required to use the sample Contract submitted.

2.3 TRANSMITTAL LETTER

The Respondent should submit a Transmittal Letter that provides the following information:

A. Name and address of individual or business entity submitting the Proposal.

B. Respondent's type of business entity (i.e., Corporation, General Partnership, Limited Partnership, LLC, etc.). See Section 3.5, Signature of Respondent, for more information.

C. Place of incorporation or organization, if applicable.

D. Name and location of major offices and other facilities that relate to the Respondent performance under the terms of this RFCSP.

E. Name, physical address, email address, business and fax number of the Respondent's principal contact person regarding all contractual matters relating to this RFCSP.

F. The Respondent's Federal Employer Identification Number.

G. A commitment by the Respondent to provide the services required by the County;

H. A statement that the Proposal is valid for the time specified on page three (3), under the section named *Prices Good for*, of this Proposal packet. Any Proposal containing a term of less than t required amount, may at the County's sole discretion, be rejected as non-responsive.

I. If the Proposal being submitted will have an effect on air quality for the County (as it relates to any state, federal, or voluntary air quality standard), then the Respondent is encouraged to provide information in narrative indicating the anticipated air quality impact. See Section 4.40, Air Quality for more information.

The Transmittal Letter should be signed by a person legally authorized to bind the Respondent to t representations in the Transmittal Letter and the Proposal. In the case of a joint Proposal, each party must sign the Transmittal Letter.

2.4 EXECUTIVE SUMMARY

The Respondent should provide an Executive Summary of its Proposal that asserts that the Respondent is providing in its response all of the requirements of this RFCSP. The Executive Summary should not include any information concerning the cost of the Proposal, but instead must represent a full and concise summary of the contents of the Proposal. It is recommended the Executive Summary include the following information:

A. Identify any goods and/or services that are provided beyond those specifically requested. If the Respondent is providing services and/or goods that do not meet the specific requirements of this RFCSP, but in the opinion of the Respondent are equivalent or superior to those specifically requested, any such differences should be noted in the Executive Summary. However, the Respondent must realize that failure to provide the goods and/or services specifically required, at the County's sole discretion, may result in disqualification of the Proposal.

B. Indicate why the Respondent believes that it is the most qualified Respondent to provide the services described in this RFCSP. The Successful Respondent must demonstrate extensive experience and understanding of the intent of this project. The Respondent should describe in detail the current and historical experience the Respondent and its subcontractors have that would be relevant to completing the project. References must contain the name of key personnel and telephone numbers for each contact, as described in Section 3.14, References.

C. Briefly state why the Respondent believes its proposed goods and/or services best meet the County's needs and RFCSP requirements, and the Respondent also should concisely describe any additional features, aspects, or advantages of its goods and/or services in any relevant area not covered elsewhere in its Proposal.

2.5 CONFLICT OF INTEREST

No public official shall have interest in a contract, in accordance with Vernon's Texas Codes Annotated, Local Government Code, Title 5, Subtitle C, Chapter 171, as amended.

As of January 1, 2006, all Respondents are responsible for complying with Local Government Code, Title 5, Subtitle C, Chapter 176. Additional information may be obtained from the County's website at the following link:

http://www.wilco.org/CountyDepartments/Purchasing/ConflictofInterestDisclosure/tabid/689/language/en-US/Default.aspx

Each Respondent must disclose any existing or potential conflict of interest relative to the performance of the requirements of this RFCSP. **Examples of potential conflicts of interest may include an existing business or personal relationship between the Respondent, its principal, or any affiliate or subcontractor with the County or any other entity or person involved in any way with the project that is subject to this RFCSP**. Similarly, any personal or business relationship between the Respondent, the principals, or any affiliate or subcontractor with any employee, or official of the County or its suppliers must be disclosed. Any such relationship that might be perceived or represented as a conflict must be disclosed. Failure to disclose any such relationship or reveal personal relationships with the County employees or officials may be cause for termination.

The County will decide if an actual or perceived conflict should result in Proposal disqualification.

By submitting a Proposal in response to this RFCSP, all Respondents affirm they have not given, nor intend to give, at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a County public servant or any employee, official or representative of same, in connection with this procurement.

Each Respondent must provide a Conflict of Interest Statement.

2.6 CERTIFICATE OF INTERESTED PARTIES – FORM 1295

As of January 1, 2016, all Respondents are responsible for complying with the Texas Government Code, Section 2252.908. The law states that the County may not enter into certain contracts with a Respondent unless the Respondent submits a disclosure of interested parties to the County at the time the Respondent submits the signed contract. The law applies only to a contract of the County on or after January 1, 2016 that either:

A. Requires an action or vote by the Commissioners Court before the contract may be signed (all contracts that fall under the jurisdiction of the Commissioners Court approval, such as contracts resulting from an Initiation for Bid (IFB), RFCSP, Request for Qualifications (RFQ), etc., excluding, but not limited to, certain Juvenile Service contracts, contracts funded with Sheriff seized fun monies, etc.); or

B. Has a value of at least $1,000,000.

By January 1, 2016, the Texas Ethics Commission will make available on its website, a new filing application that must be used to file Form 1295. Information regarding how to use the filing application is available on the Texas Ethics Commission website at the following link:

https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

A Respondent must:

A. Use the online application to process the required information on Form 1295.

B. Print a copy of the form which will contain a unique certification number.

C. An authorized agent of the Respondent must sign the printed copy of the form.

D. Have the form notarized.

E. File the completed Form 1295 and certification of filing (scanning and emailing form is sufficient) with Williamson County Purchasing Agent at the time the signed Contract is submitted for approval.

After the Commissioners Court award of the contract, the County shall notify the Texas Ethics Commission, using the Texas Ethics Commission's filing application, of the receipt of the filed Form 1295 and certification of filing not later than the 30th day after the date the contract binds all parties to the contract. The Texas Ethics Commission will post the completed Form 1295 to its website within seven business days after receiving notice from the County.

2.7 PROPOSAL AFFIDAVIT

The Respondent attests to abiding by Texas Government Code Chapter 2270, Subtitle F, Title 10 stating that they neither currently boycott Israel, nor will the boycott Israel during the term of the contract. Furthermore, the Respondent certifies and agrees to furnish any and/or all goods and/or services upon which prices are extended at the price Proposal, and upon the conditions contained in the RFCSP. Additionally, the Respondent certifies that the Proposal has not been prepared in collusion with any other Proposer or other person or persons engaged in the same line of business prior to the official opening of this Proposal. Further, Proposer certifies that the he or she is not now, nor has been for the past six months, directly or indirectly concerned in any pool or agreement or combination, to control the price services/commodities Proposal on, or to influence any person or persons to submit a Proposal or not submit a Proposal thereon. **Each Respondent must provide a Proposal Affidavit with their Proposal Package. Package may be deemed incomplete without this form.**

2.8 PROPOSAL SUBMITTAL DEADLINE

The Proposal is due no later than the submittal date and time set forth in the Public Announcement and General Information listed in this RFCSP package. Contents of each Proposal shall be submitted in accordance with this RFCSP.

2.9 ETHICS

The Respondent shall not accept or offer gifts or anything of value, nor enter into any business arrangement with any employee, official or agent of the County.

2.10 DELIVERY OF PROPOSALS

The County uses BidSync to distribute and receive bids and Proposals. It is preferred that Proposals be submitted electronically through BidSync; however, Respondents can submit a hard copy.

Refer to www.bidsync.com for further information on how to submit electronically.

If mailed or delivered in person, Proposal and Proposal Addenda are to be delivered in sealed envelope on or before the submittal deadline, as noted in the Public Announcement and General Information listed in this RFCSP package, to:

Williamson County Purchasing Department
Attn: **Proposal Name and Number**
901 South Austin Avenue
Georgetown, Texas 78626

Also, all Respondents should list their Name and Address, and the Date of the Proposal opening on the outside of the box or envelope and note "Competitive Sealed Proposal Enclosed." Williamson County will not accept any Proposals after the submittal deadline, and shall return such Proposals unopened to the Respondent. The County will not accept any responsibility for Proposals being delivered by third party carriers.

Proposals will be opened publicly and the names of the offerors and any monetary proposals made by the offerors, will be read aloud.

SECTION 3 - INSTRUCTIONS AND GENERAL REQUIREMENTS

3.1 INSTRUCTIONS

Read this document carefully, and follow all instructions and requirements. All Respondents are responsible for fulfilling all requirements and specifications. Be sure to have a clear understanding of this RFCSP.

General requirements apply to all advertised RFCSPs; however, these may be superseded, in whole or in part, by the proposal specifications, Addenda and modifications issued as a part of this RFCSP. Be sure your Proposal package is complete.

3.2 AMBIGUITY, CONFLICT, OR OTHER ERRORS IN THIS RFCSP

If a Respondent discovers any ambiguity, conflict, discrepancy, omission or other error in this RFCSP, the Respondent shall immediately notify the County Purchasing Department of such error in writing and request modification or clarification of the document.

Modifications will be made by issuing Addenda. If the Respondent fails to notify the County prior to the date and time fixed for submission of Proposals of an error or ambiguity in the RFCSP known to the Respondent, or an error or ambiguity that reasonably should have been known to the Respondent, then the Respondent shall be deemed to have waived the error or ambiguity or its later resolution.

The County may also modify the RFCSP, no later than forty-eight (48) hours prior to the date and time fixed for submission of Proposals, by issuance of an Addendum. All Addenda will be numbered consecutively, beginning with one (1).

3.3 NOTIFICATION OF MOST CURRENT ADDRESS

All Respondents in receipt of this RFCSP shall notify the Williamson County Purchasing Department any address changes, contact person changes, and/or telephone number changes no later than forty eight (48) hours prior to the date and time fixed for submission of Proposals.

3.4 SIGNATURE OF RESPONDENT

A Transmittal Letter, which shall be considered an integral part of the Proposal as stated in Section 2.3, Transmittal Letter, shall be signed by an individual who is authorized to bind the Respondent contractually.

A. If the Respondent is a Corporation or Limited Liability Company, the legal name of the Corporation or Limited Liability Company shall be provided together with the signature of the officer or officers authorized to sign on behalf of such entity.

B. If the Respondent is a General Partnership, the true name of the firm shall be provided with the signature of each partner authorized to sign.

C. If the Respondent is a Limited Partnership, the name of the Limited Partner's General Partner shall be provided with the signature of the officer authorized to sign on behalf of the General Partner.

D. If the Respondent is a Sole Proprietor(s) (individual), each Sole Proprietor(s) shall sign.

E. If signature is by an agent, other than the Sole Proprietor(s) or an officer of a Corporation, Limited

Liability Company, General Partner or a member of a General Partnership, a power of attorney equivalent document must be submitted to the Williamson County Purchasing Department.

3.5 ASSUMED BUSINESS NAME

If the Respondent operates business under an Assumed Business Name, the Respondent must have file with the Williamson County Clerk a current Assumed Name Certificate and provide a file marked copy of same prior to contract award.

3.6 ECONOMY OF PRESENTATION

Proposals should not contain promotional or display materials, except as they may directly answer in whole or in part questions contained in the RFCSP. Such exhibits shall be clearly marked with the applicable reference number of the question in the RFCSP. Proposals must address the technical requirements as specified in the RFCSP. All questions posed by the RFCSP must be answered concisely and clearly. Proposals that do not address each criterion may be, at the sole discretion of the County, rejected and not considered.

3.7. REJECTION OR ACCEPTANCE

It is understood that the Commissioners Court of Williamson county, Texas, reserves the right to accept or reject any and/or all proposals for any or all materials and/or services covered in the RFP, and to waive informalities or defects in the proposal or to accept such proposal it shall deem to be in the best interest of Williamson County.

3.8 PROPOSAL OBLIGATION

The contents of the RFCSP, Proposal, and any clarification thereof submitted by the Successful Respondent shall become part of the contractual obligation and incorporated by reference into the Contract and any Ensuing Agreement(s).

3.9 COMPLIANCE WITH RFCSP SPECIFICATIONS

It is intended that this RFCSP describe the requirements and the Proposal format in sufficient detail to secure comparable Proposal. Failure to comply with all provisions of the RFCSP may, at the sole discretion of the County, result in disqualification.

3.10 EVALUATION

The County reserves the right to use all pertinent information (also learned from sources other than disclosed in the RFCSP process) that might affect the County's judgment as to the appropriateness an award to the best evaluated Respondent. This information may be appended to the Proposal evaluation process results. Information on a Respondent from reliable sources, and not within the Respondent's Proposal, may also be noted and made part of the evaluation file. The County shall have sole discretion for determining the reliability of the source. The County reserves the right to conduct written and/or oral discussions/interviews after the Proposal opening. The purpose of such discussions/interviews is to provide clarification and/or additional information to make an award that is in the best interest of the County.

3.11 WITHDRAWAL OF PROPOSAL

The Respondent may withdraw its Proposal by submitting a written request with the company letterhead and the signature of an authorized individual, as described in Section 3.4, Signature of Respondent, to the Williamson County Purchasing Department any time prior to the submission deadline.

The Respondent may submit a new Proposal prior to the deadline. Alterations of the Proposal in any

manner will not be considered if submitted after the deadline. Withdrawal of a Proposal after the deadline will be subject to written approval of the Williamson County Purchasing Agent.

3.12 RESPONSIBILITY

It is expected that a Respondent will be able to affirmatively demonstrate responsibility. A prospective Respondent should be able to meet the following requirements:

A. Have adequate financial resources, or the ability to obtain such resources as required;
B. Be able to comply with the required or proposed delivery schedule;
C. Have a satisfactory record of performance that can be determined thru references provided; and
D. Be otherwise qualified and eligible to receive an award.

The County may request representation and other information sufficient to determine the Respondent ability to meet these minimum standards listed above.

3.13 PURCHASE ORDERS

If required by the Williamson County Purchasing Department, a purchase order(s) may be generated to the Successful Respondent for goods and/or services. If a purchase order is issued, the purchase order number must appear on all itemized invoices and/or requests for payment.

3.14 SILENCE OF SPECIFICATIONS

The apparent silence of any RFCSP specifications as to any detail or to the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

3.15 REFERENCES

Respondents shall furnish a list of contracts where similar responsibilities and goods and/or services have been required and/or performed for the past five (5) years, to include names, titles, phone numbers and email addresses of reference contacts, contract numbers and dates of performance.

Also, Respondents shall include a list of any contracts that have been cancelled or terminated within the last five (5) years, along with an explanation of the cancellation and the names, email address and phone number of a reference person with that institution.

The County may contact some or all of the references in order to determine the Respondent performance record on work similar to that described in this RFCSP. The County reserves the right to contact references other than those provided in the response and to use the information gained from them in the evaluation process.

References should be provided in accordance with this RFCSP. Proposal may not be deemed complete without the inclusion of requested references.

SECTION 4 - TERMS AND CONDITIONS

4.1 VENUE AND GOVERNING LAW

The Respondent hereby agrees and acknowledges that venue and jurisdiction of any suit, right, or cause of action arising out of or in connection with this RFCSP, the Contract and any Ensuing Agreement(s), shall lie exclusively in either Williamson County, Texas or in the Austin Division of the Western Federal District of Texas, and the parties hereto expressly consent and submit to such jurisdiction. Furthermore, except to the extent that this RFCSP, the Contract and any Ensuing Agreement(s) is governed by the laws of the United States, this RFCSP, the Contract and any Ensuing Agreement(s) shall be governed by and construed in accordance with the laws of the State of Texas, excluding, however, its choice of law rules.

4.2 INCORPORATION BY REFERENCE AND PRECEDENCE

A. The Contract shall be derived from the RFCSP and its Addenda (if applicable), and the Respondent's Proposal. In the event of a dispute under the Contract, applicable documents will be referred to for the purpose of clarification or for additional detail in the following order of precedence:

   1. The RFCSP and its Addenda (if applicable); and

   2. The Respondent's Proposal.

B. In the event the County requires that an Ensuing Agreement be executed following award and a dispute arises between the terms and conditions of the Ensuing Agreement, the RFCSP and its Addenda (if applicable), and the Respondent's Proposal, applicable documents will be referred to for the purpose of clarification or for additional detail in the following order of precedence:

   1. The terms and conditions of the Ensuing Agreement;

   2. The RFCSP and its Addenda; and

   3. The Respondent's Proposal.

4.3 OWNERSHIP OF PROPOSAL

Each Proposal shall become the property of the County upon submittal and will not be returned to Respondents unless received after the submittal deadline.

4.4 DISQUALIFICATION OF RESPONDENT

Upon signing and submittal of the Proposal, a Respondent offering to sell supplies, materials, services, or equipment to the County, certifies that the Respondent has not violated the antitrust laws of the State of Texas codified in Business & Commerce Code, Section 15.01, or the Federal Antitrust Laws, and has not communicated directly or indirectly the offer made to any competitor or any other person engaged such line of business. Any or all Proposals may be rejected if the County believes that collusion exists among the Respondents.

4.5 FUNDING

The County intends to budget and make sufficient funds available and authorize funds for expenditure to finance the costs of the Contract. All Respondents understand and agree that the County's payment of amounts under the Contract shall be contingent on the County receiving appropriations or other expenditure authority sufficient to allow the County, in the exercise of reasonable administrative discretion, to make payments under this Contract.

A. ASSIGNMENT, SUCCESSORS AND ASSIGNS

The Successful Respondent may not assign, sell, or otherwise transfer the Contract or any other rights or interests obtained under the Contract without written permission of the Williamson County the Commissioners Court. The Contract and any Ensuing Agreement(s) shall be binding upon and inure to the benefit of the contracting parties hereto and their respective successors and permitted assigns.

4.6 IMPLIED REQUIREMENTS

Products or services not specifically described or required in the RFCSP, but are necessary to provide the functional capabilities described by the Respondent, shall be implied and deemed to be included in the Proposal.

4.7 TERMINATION

A. **Termination for Cause:** The County reserves the right to terminate the Contract and/or any Ensuing Agreement(s) for default if the Successful Respondent breaches any of the Proposal specifications, terms and conditions, including warranties of the Respondent, if any, or if the Successful Respondent becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies the County may have at law or equity or as may otherwise be provided hereunder. Default may be construed as, but not limited to, failure to deliver the proper goods and/or services within the proper amount of time, and/or to properly perform any and all other requirements to the County's satisfaction, and/or to meet all other obligations and requirements.

B. **Termination for Convenience:** The County may terminate the Contract and/or any Ensuing Agreement(s) for convenience and without cause or further liability, upon no less than thirty (30) calendar days written notice to the Successful Respondent. The County reserves the right to extend this period if it is in the best interest of the County. In the event the County exercises its right to terminate without cause, it is understood and agreed that only the amounts due to the Successful Respondent for goods, commodities and/or services provided and expenses incurred to and including the date of termination, will be due and payable. No penalty will be assessed for the County's termination for convenience.

4.8 NON-PERFORMANCE

It is the objective of the County to obtain complete and satisfactory performance of the requirements set forth herein. In addition to any other remedies available at law, in equity or that may be set out herein, failure to perform may result in a deduction of payment equal to the amount of the goods and/or services that were not provided and/or performed to the County's satisfaction.

In the event of such non-performance, the County shall have the right, but shall not be obligated, to complete the services itself or by others and/or purchase the goods from other sources. If the County elects to acquire the goods or perform the services itself or by others, pursuant to the foregoing, the Successful Respondent shall reimburse the County, within ten (10) calendar days of demand, for all costs incurred by the County (including, without limitation, applicable, general, and administrative expenses, and field overhead, and the cost of necessary equipment, materials, and field labor) in correcting the nonperformance which the Successful Respondent fails to meet pursuant to the requirements set out herein. In the event the Successful Respondent refuses to reimburse the County

as set out in this provision, the County shall have the right to deduct such reimbursement amounts from any amounts that may be then owing or that may become owing in the future to the Successful Respondent.

4.9 PROPRIETARY INFORMATION AND THE TEXAS PUBLIC INFORMATION ACT

All material submitted to the County shall become public property and subject to the Texas Public Information Act upon receipt. If a Respondent does not desire proprietary information in the Proposal to be disclosed, each page must be clearly identified and marked proprietary at time of submittal or, more preferably, all proprietary information may be placed in a folder or appendix and be clearly identified and marked as being proprietary. Failure to clearly identify and mark information as being proprietary as set forth under this provision will result in all unmarked information being deemed non-proprietary and available to the public. For all information that has not been clearly identified and marked as proprietary by the Respondent, the County may choose to place such information on the County's website and/or a similar public database without obtaining any type of prior consent from the Respondent.

The County will, to the extent allowed by law, endeavor to protect from public disclosure the information that has been identified and marked as proprietary. The final decision as to what information must be disclosed, however, lies with the Texas Attorney General.

To the extent, if any, that any provision in this RFCSP or in the Respondent's Proposal is in conflict with Texas Government Code, Chapter 552, as amended (the "Public Information Act"), the same shall be of no force or effect. Furthermore, it is expressly understood, and agreed, that the County, and its officers and employees, may request advice, decisions and opinions of the Attorney General of the State of Texas in regard to the application of the Public Information Act to any items or data furnished to the County as to whether or not the same are available to the public. It is further understood that that the County, and its officers and employees, shall have the right to rely on the advice, decisions and opinions of the Attorney General, and that the County, its officers and employees shall have no liability or obligation to any party hereto for the disclosure to the public, or to any person or persons, of any items or data furnished to the County by a party hereto, in reliance of any advice, decision or opinion of the Attorney General of the State of Texas.

4.10 RIGHT TO AUDIT

The Successful Respondent agrees that the County or its duly authorized representatives shall, until the expiration of three (3) years after termination or expiration of the services to be performed, have access to and the right to examine and photocopy any and all books, documents, papers and records of the Successful Respondent, which are directly pertinent to the services to be performed or goods to delivered for the purposes of making audits, examinations, excerpts and transcriptions. The Successful Respondent agrees that the County shall have access during normal working hours to all necessary facilities and shall be provided adequate and appropriate work space in order to conduct audits in compliance with the provisions of this section. The County shall give the Successful Respondent reasonable advance notice of intended audits.

4.11 TESTING AND INSPECTIONS

The County reserves the right to inspect and test equipment, supplies, materials and goods for quality and compliance with this RFCSP, and ability to meet the needs of the user. Demonstration units must be available for review. Should the goods or services fail to meet requirements and/or be unavailable for evaluation, the County can deem the Respondent to be in breach and terminate the Contract and/or any Ensuing Agreement(s).

4.12 PROPOSAL PREPARATION COSTS

The cost of developing Proposals is the sole responsibility of the Respondents and shall not be charged to the County. There is no expressed or implied obligation for the County to reimburse the Respondents

for any expense incurred in preparing a Proposal in response to this RFCSP and the County will not reimburse the Respondents for such expenses.

4.13 INDEMNIFICATION

The Successful Respondent shall indemnify, defend and save harmless, the County, its officials, employees, agents and agent's employees from, and against, all claims, liability, and expenses including reasonable attorneys' fees, arising from activities of the Respondent, its agents, servants or employees, performed hereunder that result from the negligent act, error, or omission of the Respondent or any of the Respondent's agents, servants or employees, as well as all claims of loss or damage to the Respondent's and the County's property, equipment, and/or supplies.

Furthermore, the County, its officials, employees, agents and agents' employees shall not be liable for damages to the Successful Respondent arising from any act of any third party, including, but not limited to, theft. The Successful Respondent further agrees to indemnify, defend and save harmless, the County from its officials, employee, agents and agents' employees against all claims of whatever nature arising from any accident, injury, or damage whatsoever, caused to any person, or the property of any person, occurring in relation to the Successful Respondent's performance of any services requested hereunder during the term of the Contract and/or any Ensuing Agreement(s).

The Successful Respondent shall timely report all claims, demands, suits, actions, proceedings, liens or judgements to the County and shall, upon the receipt of any claim, demand, suit, action, proceeding, lien or judgement, not later than the fifteenth (15^{th}) day of each month; provide the County with a written report on each such matter, setting forth the status of each matter, the schedule or planned proceedings with respect to each matter and the cooperation or assistance, if any, of the County required by the Successful Respondent in the defense of each matter. The Successful Respondent's duty to defend, indemnify and hold the County harmless shall be absolute. It shall not abate or end by reason of the expiration or termination of the Contract and/or any Ensuing Agreement(s), unless otherwise agreed by the County in writing. The provisions of this section shall survive the termination of the Contract and shall remain in full force and effect with respect to all such matters no matter when they arise.

In the event of any dispute between the parties, as to whether a claim, demand, suit, action, proceeding, lien or judgement, that appears to have been caused by or appears to have arisen out of or in connection with acts or omissions of the County, the Respondent shall nevertheless fully defend such claim, demand, suit or action, proceeding, lien or judgement, until and unless there is a determination by a court of competent jurisdiction that the acts and omissions of the Respondent are not an issue in the matter.

The Successful Respondent's indemnification shall cover, and the Successful Respondent agrees to, indemnify the County, in the event the County is found to have been negligent for having selected the Successful Respondent to perform the work described in this request. The provision by the Successful Respondent of insurance shall not limit the liability of the Successful Respondent under the Contract and/or any Ensuing Agreement(s).

4.14 WAIVER OF SUBROGATION

The Successful Respondent and the Successful Respondent's insurance carrier waive any and all rights whatsoever with regard to subrogation against the County as an indirect party to any suit arising out of personal or property damages resulting from the Respondent's performance under this Contract and any Ensuing Agreement(s).

4.15 RELATIONSHIP OF THE PARTIES

The Successful Respondent shall be an independent contractor and shall assume all of the rights, obligations, liabilities, applicable to it as such independent contractor hereunder and any provisions herein which may appear to give the County the right to direct the Successful Respondent as to details of

doing work herein covered, or to exercise a measure of control over the work, shall be deemed to mean that the Successful Respondent shall follow the desires of the County in the results of the work only. The County shall not retain or have the right to control the Successful Respondent's means, methods or details pertaining to the Successful Respondent's performance of the work. The County and the Successful Respondent hereby agree and declare that the Successful Respondent is an independent contractor and as such meets the qualifications of an "Independent Contractor" under Texas Workers Compensation Act, Texas Labor Code, Section 406.141, that the Successful Respondent is not an employee of the County, and that the Successful Respondent and its employees, agents and subcontractors shall not be entitled to workers compensation coverage or any other type of insurance coverage held by the County.

4.16 SOLE PROVIDER

The Successful Respondent agrees and acknowledges that it shall not be considered a sole provider of the goods and/or services described herein and that the County may contract with other providers of such goods and/or services if the County deems, at its sole discretion, that multiple providers of the same goods and/or services will serve the best interest of the County.

4.17 FORCE MAJEURE

If the party obligated to perform is prevented from performance by an act of war, order of legal authority, act of God, or other unavoidable cause not attributable to the fault or negligence of said party, the other party shall grant such party relief from the performance. The burden of proof for the need of such relief shall rest upon the party obligated to perform. To obtain release based on force majeure, the party obligated to perform shall file a written request with the other party.

4.18 SEVERABILITY

If any provision of this RFCSP, the Contract or any Ensuing Agreement(s) shall be held invalid or unenforceable by any court of competent jurisdiction, such holding shall not invalidate or render unenforceable any other provision thereof, but rather the entire RFCSP, Contract or any Ensuing Agreement(s) will be construed as if not containing the particular invalid or unenforceable provision or provisions, and the rights and obligation of the parties shall be construed and enforced in accordance therewith. The parties acknowledge that if any provision of this RFCSP, the Contract or any Ensuing Agreement(s) is determined to be invalid or unenforceable, it is the desire and intention of each that such provision be reformed and construed in such a manner that it will, to the maximum extent practicable, give effect to the intent of this RFCSP, the Contract or any Ensuing Agreement(s) and be deemed to be validated and enforceable.

4.19 EQUAL OPPORTUNITY

Neither party shall discriminate against any employee or applicant for employment because of race, color, sex, religion or national origin.

4.20 NOTICE

Any notice to be given shall be in writing and may be distributed by personal delivery, or by registered or certified mail, return receipt requested, addressed to the proper party, at the following address:

The County: Williamson County Purchasing Department
Attn: Purchasing Agent
901 South Austin Avenue
Georgetown, Texas 78626

The Respondent: Address set out in Respondent's Transmittal Letter

Notices given in accordance with this provision shall be effective upon (1) receipt by the party to which notice is given, or (2) on the third (3rd) calendar day following mailing, whichever occurs first.

4.21 SALES AND USE TAX EXEMPTION

The County is a body, corporate and politic, under the laws of the State of Texas and claims exemption from sales and use taxes under Texas Tax Code, Section 151.309, as amended, and the services and/or goods subject hereof are being secured for use by the County.

4.22 COMPLIANCE WITH LAWS

The County and the Successful Respondent shall comply with all federal, state, and local laws, statutes, ordinances, rules and regulations, and the orders and decrees of any courts or administrative bodies or tribunals in any matter affecting the performance of the Contract and any Ensuing Agreement(s), including, without limitation, Workers' Compensation laws, salary and wage statutes and regulations, licensing laws and regulations. When required, the Successful Respondent shall furnish the County with certification of compliance with said laws, statues, ordinances, rules, regulations, orders, and decrees above specified.

4.23 INCORPORATION OF EXHIBITS, APPENDICES AND ATTACHMENTS

All of the Exhibits, Appendices and Attachments referred to herein are incorporated by reference as if set forth verbatim herein. Any conflicting terms in the Contract documents will be resolved at the sole discretion of the Commissioners Court.

4.24 NO WAIVER OF IMMUNITIES

Nothing herein shall be deemed to waive, modify or amend any legal defense available at law or in equity to the County, its past or present officers, employees, or agents, nor to create any legal rights or claim on behalf of any third party. The County does not waive, modify, or alter to any extent whatsoever the availability of the defense of governmental immunity under the laws of the State of Texas and of the United States.

4.25 NO WAIVER

The failure or delay of any party to enforce at any time or any period of time any of the provisions of this RFCSP, the Contract or any Ensuing Agreement(s) shall not constitute a present or future waiver of such provisions nor the right of either party to enforce each and every provision. Furthermore, no term or provision hereof shall be deemed waived and no breach excused unless such waiver or consent shall be in writing and signed by the party claimed to have waived or consented. Any consent by any party to, or waiver of, a breach by the other, whether expressed or implied, shall not constitute a consent to, waiver of or excuse for any other, different or subsequent breach.

4.26 CURRENT REVENUES

The obligations of the parties under the Contract and any Ensuing Agreement(s) do not constitute a general obligation or indebtedness of the County for which the County is obligated to levy, pledge, or collect any of taxation. It is understood and agreed that the County shall have the right to terminate the Contract and any Ensuing Agreement(s) at the end of any the County fiscal year if the governing body of the County does not appropriate sufficient funds as determined by the County's budget for the fiscal year in question. The County may effect such termination by giving written notice of termination to the Successful Respondent at the end of its then-current fiscal year.

4.27 BINDING EFFECT

This Contract and any Ensuing Agreement(s) shall be binding upon and inure to the benefit of the parties

and their respective permitted assigns and successors.

4.28 SAFETY

The Successful Respondent is responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with any services to be provided hereunder. The safety program shall comply with all applicable requirements of the current federal Occupational Safety and Health Act and all other applicable federal, state and local laws and regulations.

4.29 GENERAL OBLIGATIONS AND RELIANCE

The Successful Respondent shall perform all services and/or provide all goods, as well as those reasonably inferable and necessary for completion and provision of services and/or goods required hereunder. The Successful Respondent shall keep the County informed of the progress and quality the services. The Successful Respondent agrees and acknowledges that the County is relying on the Successful Respondent's represented expertise and ability to provide the goods and/or services described herein. The Successful Respondent agrees to use its best efforts, skill, judgment, and abilities to perform its obligations in accordance with the highest standards used in the profession and to further the interests of the County in accordance with the County's requirements and procedures. The Successful Respondent's duties, as set forth herein, shall at no time be in any way diminished by reason of any approval by the County, nor shall the Successful Respondent be released from any liability reason of such approval by the County, it being understood that the County at all times is ultimately relying upon the Successful Respondent's skill and knowledge in performing the services and providing any goods required hereunder.

4.30 CONTRACTUAL DEVELOPMENT

The Commissioners Court may award the Contract on the basis of the initial Proposals received, without any further or additional discussions. Therefore, each initial Proposal should contain the Respondent best terms and offer. The contents of the RFCSP and the selected Proposal will become an integral part of the Contract, but may be modified, at Williamson County's sole discretion, by provisions of an Ensuing Agreement. Therefore, the Respondent must agree to inclusion in an Ensuing Agreement of t Proposal specifications, terms and conditions of this RFCSP. Williamson County and its architect or engineer may discuss with the Successful Respondent options for a scope or time modification and any price change associated with the modification. In the event such discussions are conducted and Williamson County and the Successful Respondent cannot agree to scope or time modifications and any price change associated with such modifications, County may still opt to contract with the Successful Respondent based on selected Respondent's original Proposal to the RFCSP.

The Successful Respondent shall be required to execute a formal contract at Williamson County offices in Georgetown, Texas within ten (10) days after the award. Said contract shall be in the same form as the Agreement Between Owner and Contractor which begins on the following page. The only anticipated changes in the contract will be to include additional exhibits, to fill in blanks to identify the contractor, and terms relating to the compensation, or to revise the contract to accommodate corrections, changes in the scope of services, or changes pursuant to addenda issued. Respondents should raise any questions regarding the terms of the contract, or submit requested changes in said terms, in the form of written questions or submittals. Because the signed contract will be substantively and substantially derived from the attached contract, each Respondent is urged to seek independent legal counsel as to any questions about the terms, conditions or provisions contained in the attached contract before submitting a Proposal. Again, the attached contract contains important legal provisions and is considered part and parcel of this RFCSP. Failure or refusal to sign aforesaid contract shall be grounds for Williamson County to revoke any award which has been issued, forfeit security, if applicable, and select another Respondent.

4.31 ENTIRE AGREEMENT

The Contract and any Ensuing Agreement(s) shall supersede all prior Agreements, written or oral between the Successful Respondent and the County and shall constitute the entire Agreement and understanding between the parties with respect to the services and/or goods to be provided. Each of the provisions herein shall be binding upon the parties and may not be waived, modified, amended or altered, except by writing signed by the Successful Respondent and the County.

4.32 SURVIVABILITY

All applicable agreements that were entered into between the Successful Respondent and the County, under the terms and conditions of the Contract and/or any Ensuing Agreement(s), shall survive the expiration or termination thereof for ninety (90) days unless a new contract has been awarded.

The County may exercise, by written notice to the Successful Respondent no later than ten (10) calendar days of the Contract expiration, this clause for emergency cases only.

4.33 PAYMENT

The County's payment for goods and services shall be governed by the Texas Government Code, Chapter 2251. An invoice shall be deemed overdue the thirty-first (31st) day after the later of the following:

A. The date the County receives the goods under the Contract;
B. The date the performance of the service under the Contract is completed; or
C. The date the Williamson County Auditor receives an invoice for the goods or services.

Interest charges for any overdue payments shall be paid by the County in accordance with Texas Government Code, Section 2251.025. More specifically, the rate of interest that shall accrue on a late payment is the rate in effect on September 1 of the County's fiscal year in which the payment becomes due. The said rate in effect on September 1 shall be equal to the sum of one (1) percent and the prime rate published in the Wall Street Journal on the first (1st) day of July of the preceding fiscal year that does not fall on a Saturday or Sunday.

In the event that an error appears in an invoice submitted by the Successful Respondent, the County shall notify the Successful Respondent of the error not later than the twenty-first (21st) day after the date the County receives the invoice. If the error is resolved in favor of the Successful Respondent, the Successful Respondent shall be entitled to receive interest on the unpaid balance of the invoice submitted by the Successful Respondent beginning on the date that the payment for the invoice became overdue. If the error is resolved in favor of the County, the Successful Respondent shall submit a corrected invoice that must be paid in accordance within the time set forth above. The unpaid balance accrues interest as provided by the Texas Government Code, Chapter 2251, if the corrected invoice is not paid by the appropriate date.

As a minimum, invoices shall include:

A. Name, address, and telephone number of the Successful Respondent and similar information in the event the payment is to be made to a different address.

B. The County Contract, Purchase Order.

C. Identification of items or service as outlined in the Contract.

D. Quantity or quantities, applicable unit prices, total prices and total amount.

E. Any additional payment information which may be called for by the Contract.

Payment inquiries should be directed to the following address:

Williamson County Auditor's Office, Accounts Payable Department
Email: accountspayable@wilco.org
Phone: 512-943-1500

4.34 CONTRACTUAL FORMATION AND ENSUING AGREEMENT

The RFCSP and the Respondent's Proposal, when properly accepted by the Commissioners Court, shall constitute a Contract equally binding between the Successful Respondent and the County. The Successful Respondent may be required by Williamson County to sign an additional Agreement containing terms necessary to ensure compliance with the RFCSP and Respondent's Proposal.

4.35 LEGAL LIABILITY INFORMATION

The Successful Respondent shall disclose all legal liability information by listing any pending litigation anticipated litigation that your firm is involved in including, but not limited to, potential or actual legal matters with private parties and any local, state, federal or international governmental entities. The County reserves the right to consider legal liability information in the recommendation of any proposed contract to the Commissioners Court.

4.36 CONFIDENTIALITY

Respondent expressly agrees that it will not use any direct or incidental confidential information that may be obtained while working in a governmental setting for its own benefit, and agrees that it will not access unauthorized areas or confidential information and it will not disclose any information to unauthorized third parties, and will take care to guard the security of the information at all times.

4.37 INCLEMENT WEATHER

In case of inclement weather or any other unforeseen event causing the County to close for business on the date of a Proposal submission deadline, the Proposal closing will automatically be postponed until the next business day the County is open. If inclement weather conditions or any other unforeseen event causes delays in carrier service operations, the County may issue an Addendum to all known Respondents interested in the project to extend the deadline. It will be the responsibility of the Respondent to notify the County of their interest in the project if these conditions are impacting their ability to turn in a submission within the stated deadline. The County reserves the right to make the final judgement call to extend any deadline.

4.38 AIR QUALITY

In determining the overall best Proposal, the County may, to the extent applicable, exercise the option granted to local governments under the Texas Local Government Code, Section 271.907.

This option allows the County to evaluate Proposals and give preference to goods and/or services of Respondent that demonstrates that the Respondent meets or exceeds any and all state or federal environmental standards, including voluntary standards, relating to air quality. If the Proposal being submitted will have an effect on air quality for the County (as it relates to any state, federal, or voluntary air quality standard), then the Respondent is encouraged to provide information in narrative indicating the anticipated air quality impact. All Respondents are expected to meet all mandated state and federal air quality standards.

4.39 COOPERATIVE PURCHASING PROGRAM

During the term of the Contract resulting from this RFCSP, the County would like to afford the same

prices, terms and conditions to other political subdivisions or public entities. Another entity's participation in the Contract resulting from this RFCSP is subject to a properly authorized Purchasing Cooperative Inter-local Agreement (ILA) with the County. Any liability created by purchase orders issued against the Contract shall be the sole responsibility of the governmental agency placing the order.

4.40 PREVAILING WAGE RATES

To the extent this procurement is for the construction of a public work, including a building, highway, road, excavation, and repair work or other project development or improvement, paid for in whole or in part from public funds, without regard to whether the work is done under public supervision or direction, Texas Government Code, Chapter 2258, shall apply and the contractor shall pay not less than the wage scale of the various classes of labor as shown on the "Prevailing Wage Schedule" provided by the County. Pursuant to Texas Government Code, Section 2258.022(a)(2), the County has determined the general prevailing rate of the "Prevailing Wage Schedule" in the locality in which the public work is to be performed for each craft or type of worker needed to execute the contract and the prevailing rate for legal holiday and overtime work by using the prevailing wage rate as determined by the United States Department of Labor in accordance with the United States Code, Section 276a (Davis-Bacon Act).

The specified wage rates are minimum rates only, and are not representations that qualified labor adequate to perform the work is available locally at the prevailing wage rates. The County is not bound to pay—and will not consider—any claims for additional compensation made by any contractor because the contractor pays wages in excess of the applicable minimum rate contained in the Contract Documents. The "Prevailing Wage Schedule" is not a representation that quantities of qualified labor adequate to perform the work may be found locally at the specified wage rates.

For classifications not shown, workers shall not be paid less than the wage indicated for laborers. The contractor shall notify each worker commencing work on the project the worker's job classification and the established minimum wage rate required to be paid, as well as the actual amount being paid. The notice must be delivered to and signed in acknowledgement of receipt by the employee and must list both the monetary wages and fringe benefits to be paid or furnished for each classification in which the worker is assigned duties. When requested by the County, competent evidence of compliance with the Texas Prevailing Wage Law shall be furnished by contractor. A copy of each worker wage rate notification shall be submitted to the County with the Application for Payment for the period during which the worker began on-site activities.

Should the contractor at any time become aware that a particular skill or trade not reflected on the County's "Prevailing Wage Schedule" will be or is being employed in the work, whether by the contractor or by a subcontractor, the contractor shall promptly inform the County and shall specify a wage rate for that skill or trade, which shall bind the contractor.

The contractor and any subcontractor shall pay to the County a penalty of sixty dollars ($60.00) for each worker employed for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the "Prevailing Wage Schedule" or any supplement thereto. The contractor and each subcontractor shall keep, or cause to be kept, an accurate record showing the names and occupations of all workers employed in connection with the work, and showing the actual per diem wages paid to each worker, which records shall be open at all reasonable hours for the inspection by the County.

Within thirty-one (31) days of receipt of information concerning a violation of the Texas Government Code Chapter 2258, the County shall make an initial determination as to whether good cause exists to believe a violation occurred. The County's decision on the initial determination shall be reduced to writing and sent to the contractor or subcontractor against whom the violation was alleged, and to the affected worker. When a good cause finding is made, the County shall retain the full amounts claimed by the claimant or claimants as the difference between wages paid and wages due under the "Prevailing Wage Schedule" and any supplements thereto, together with the applicable penalties, such amounts being subtracted from successive progress payments pending a final decision on the violation.

After the County makes its initial determination, the affected contractor or subcontractor and worker have fourteen (14) calendar days in which to resolve the issue of whether a violation occurred, including the amount that should be retained by the County or paid to the affected worker. If the contractor or subcontractor and affected worker reach an agreement concerning the worker's claim, the contractor shall promptly notify the County in a written document signed by the worker. It the contractor or Subcontractor and affected worker do not agree before the fifteenth (15th) calendar day after the County determination, the contractor or subcontractor and affected worker must participate in binding arbitration in accordance with the Texas General Arbitration Act, Chapter 171, (Texas Civil Practice and Remedies Code). The parties to the arbitration have ten (10) calendar days after the expiration of the fifteen (15) calendar days referred to above, to agree on an arbitrator; if by the eleventh (11th) calendar day there is no agreement to an arbitrator, a district court shall appoint an arbitrator on the petition of any of the parties to the arbitration.

If an arbitrator determines that a violation has occurred, the arbitrator shall assess and award against the contractor or subcontractor the amount of penalty as provided above and the amount owed the worker. The County may use any amounts retained hereunder to pay the worker the amount as designated in the arbitration award. If the County has not retained enough from the contractor or subcontractor to pay the worker in accordance with the arbitration award, the worker has a right of action against the contractor and subcontractor as appropriate, and the surety of either to receive the amount owed, attorneys' fees and court costs. The contractor shall promptly furnish a copy of the arbitration award to the County.

Money retained pursuant to the provisions above shall be used to pay the claimant or claimants the difference between the amount the worker received in wages for labor on the project at the rate paid by the contractor or subcontractor and the amount the worker would have received at the general prevailing wage rate as provided by the agreement of the claimant and the contractor or subcontractor affected, or in the arbitrator's award. The full statutory penalty of sixty dollars ($60.00) per calendar day of violation per worker shall be retained by Williamson County to offset its administrative costs, pursuant to Texas Government Code, Section, 2258.023. Any retained funds in excess of these amounts shall be paid to the contractor on the earlier of the next progress payment or final payment. Provided, however, that the County shall have no duty to release any funds to either the claimant or the contractor until it has received the notices of agreement or the arbitration award as provided under the provision herein-above.

4.41 CONFIDENTIALITY

The Respondent expressly agrees that it will not use any direct or incidental confidential information that may be obtained while working in a governmental setting for its own benefit, and agrees that it will not access unauthorized areas or confidential information and it will not disclose any information to unauthorized third parties, and will take care to guard the security of the information at all times.

Evaluation Criteria for Williamson County Jail Renovations – FY19

A. In order to qualify for this project the respondent must fully satisfy the following criteria:

1. Respondent shall have a physical office located within a reasonable proximity of the project location. Respondent must provide physical business address and how long at that location, as well as the extent of the business completed from this location;
2. Respondent shall provide a list of the proposed management team for the project, to include at least the Company owner, Project Manager, Superintendent, and other support team members. Please provide the resume of each team member;
3. Respondent shall provide documentation verifying, they have been conducting business as a General Contractor in Texas for a minimum of 5 (five) years.
4. Respondent shall supply a list of 3 (three) verifiable references from projects completed of similar or larger size, scope and dollar amount performed in Texas, within the last 5 years. The list must include at a minimum the project name, contact information (name, telephone and email), brief project description, size /square footage, project location, and project dollar amount. Respondent to provide the timeframe for completion, and if project was completed ahead of or on schedule, and if not explain why.
5. Respondent shall submit a Proposed Project Schedule for Williamson County Jail Renovations – FY19 with separate sections per Major Work Item scope.
    a HVAC
    b Plumbing
    c Electrical
    d Intercom
    e Man-traps
    f Stainless Steel
6. Respondent shall submit with its proposal a letter from Respondent's bond company, registered to issue bonds in the state of Texas, stating the ability of the respondent to obtain a Performance and Payment Bond for the project.
7. Respondent shall submit the name of their proposed subcontractors for the following scopes:
    a HVAC
    b Plumbing
    c Electrical
    d Intercom

B. Respondents that fully comply with all the above requirements will then be considered and evaluated as follow:

1. An evaluation committee of at least three County representatives will evaluate the qualified respondents and make the determination regarding the successful company to proceed with negotiations and award.

2. The evaluation committee will review the following:

- **Qualifications (40 Points)** - *Respondents will be scored on their qualifications in relation to this project. The following factors will be considered to determine respondents qualifications and appropriate score:*
    - *Proposed General Contractor's management team's experience with* detention facilities *(20 Points)*
        - *Proposed Project Manager (10 Points)*
        - *Proposed Project Supt (10 Points)*
    - *Proposed Subcontract Team's experience with* detention facilities *(20 Points)*
        - *Proposed HVAC Subcontractor (5 points)*
        - *Proposed Plumbing Subcontractors (5 points)*
        - *Proposed Electrical Subcontractor (5 points)*
        - *Proposed Intercom Subcontractor (5 points)*
- **Pricing (35 Points)** - *Points for pricing shall be determined by the following formula.*
    - *Lowest respondent will receive the maximum 35 points.*
    - *Next Lowest Bidder = 35 maximum points for pricing x (lowest price proposal amount/respondents price proposal amount).*
- **Reputation (15 Points)** - *Respondents will be scored a maximum of 15 points on their reputation. Reputation of the respondents will be determined by the following factors:*
    - *References*
    - *Respondents safety record*
- **Location of office (10 Points)** - *10 maximum points for location of office. Points will be awarded in the following manner.*
    - *10 points for respondents with office location in Williamson County or an adjacent county.*
    - *5 points for respondents with an office in the State of Texas but outside of Williamson County or an adjacent county.*
    - *0 points for respondents with no office location in the State of Texas.*

3. Contract negotiations, interviews and reference verification may also be a part of the selection process. Additional criteria if necessary for interviews will be provided to those selected respondents.

NOTE: The successful respondent will be required to execute a formal contract at Williamson County's offices in Georgetown, Texas within ten (10) days after the award. Said contract shall be in the same form as the Agreement between Owner and Contractor that has been made a part of this RFP package. The only anticipated changes in the contract will be to include additional exhibits, to fill in blanks to identify the contractor, and terms relating to the contract price, or to revise the contract to accommodate corrections, changes in the scope of services, or changes pursuant to addenda issued. **Respondents should raise any questions regarding the terms of the contract, or submit requested changes in said terms, in the form of written questions or submittals.** Because the signed contract will be substantively and substantially derived from the Agreement between Owner and Contractor that has been made a part of this RFP package, each respondent is urged to seek independent

legal counsel as to any questions about the terms, conditions or provisions contained in the Agreement between Owner and Contractor ***before*** submitting a proposal.

Again, the Agreement Between Owner and Contractor that has been made a part of this RFP package contains important legal provisions and is considered part and parcel of this Request for Proposals. Failure or refusal to sign aforesaid contract shall be grounds for Williamson County to revoke any award which has been issued, forfeit bid security, if applicable, and select another respondent.

PROJECT MANUAL

WILLIAMSON COUNTY

SOUTH JAIL RENOVATION

306 WEST 4TH STREET

GEORGETOWN, TEXAS 78626

December 12, 2018

TALEX, INC., ENGINEERS

TX FIRM 3712

6300 LA CALMA DR., SUITE 100

AUSTIN, TEXAS 78752

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ELECTRICAL

26 01 00 - GENERAL REQUIREMENTS FOR ELECTRICAL WORK

26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

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SECTION 22 01 00

GENERAL REQUIREMENTS FOR PLUMBING WORK

PART 1 - GENERAL

1.1 SCOPE

A. This project involves construction of the project as titled above with associated site work as shown on the plans and described herein.

1.2 DRAWINGS

A. Contract drawings are diagrammatic only and do not give fully dimensioned locations of various elements. Contractor shall determine exact locations from field measurements. Refer also to all architectural, structural, etc., drawings. The lack of specific detail of all offsets, transitions, etc., shall not relieve the Contractor of responsibility to provide such necessary elements to coordinate his work with building construction and with other trades.

1.3 SUBSTITUTION

A. All bids shall be based only on the equipment and materials as scheduled on the drawings and/or as specified, or on equivalent equipment and materials from a pre-approved alternative manufacturer. No bids may be based on a substitute or other alternative without specific written prior approval from the Engineer. Any Bidder who assumes equivalence of products and who bases his/her bid on that assumption, does so at their own risk.

B. A listing of approved alternative manufacturers does not mean that all products of a particular alternative manufacturer are acceptable alternatives to the scheduled items; it merely means that for bidding prior approval is not required. All fixtures and devices must still be submitted according to the prescribed procedures. In addition, some items that have an important visual affect, e.g. electric water coolers, may be required to receive Engineer's or Owner's approval also.

C. Substitute equipment, components, devices and systems shall be fully compatible with the design intent and complete with all required costs included in the bid amount. This includes all modifications to support, structure, pipe and electrical sizing and components needed and all other items necessary for the substitute to perform with no additional cost to the project.

1.4 INTENT

A. All equipment, materials and labor that may be necessary to complete work in accordance with the intent of these plans and specifications shall be furnished by the Contractor without additional cost.

B. All systems represented in the documents shall, unless specifically noted to the contrary, be provided and installed complete with all necessary components to form a complete and functioning system. Submission of bids will be considered confirmation that complete and functional systems have been included in the bids.

C. If any discrepancies or confusion is perceived in the documents, the Contractor shall call such to the attention of the Engineer for clarification of the documents prior to bidding or construction. If any inconsistencies or contradictions within the construction documents are discovered after the construction contracts are awarded, the Engineer shall determine the intent and correct interpretation of the construction documents.

D. Contractor shall supervise and direct the work competently and efficiently and in accordance with the drawings and specifications. Contractor shall be responsible for using construction means, methods, techniques, sequences, and procedures as are compatible with the project's requirements and will result in a project completed in accordance with the requirements of the drawings and specifications.

1.5 CODES, PERMITS AND FEES

A. Contractor shall comply with all local, state and national codes and shall pay for all applicable costs, fees and permits.

1.6 CONNECTION TO UTILITIES

A. Coordinate connections to utilities directly with utility providers.

B. Verify location, size, elevation, pressure, and any other pertinent data of existing utilities. Additional costs incurred due to a failure to verify such data and to coordinate associated work with respective utility providers shall be borne by Contractor.

C. All costs associated with providing utilities including, but not limited to, connection fees, boring under roads, etc., shall be included in the Contractor's bid price whether such costs are incurred by Contractor or charged by a utility company.

D. Submission of a bid by a Contractor shall be considered an acknowledgment by the Contractor of his compliance with this section.

E. Contractor shall connect water and waste piping and gas service to existing services in accordance with utility company regulations and shall pay all applicable fees and costs. NOTE: Excavate by hand and with caution to locate all utilities prior to machine excavation. Should any service be interrupted, Contractor shall repair it immediately and at no additional cost.

1.7 VIBRATION AND NOISE

A. Each of the various pieces of equipment shall operate without objectionable vibration or noise. All rotating equipment shall be statically and dynamically balanced and shall be mounted, supported, and fastened so that vibration shall not exceed levels specified for the equipment item. The specific type of vibration isolation to be installed shall be submitted to the Engineer for his approval.

B. If, in the opinion of the Engineer, objectionable vibration or noise or transmission thereof to the building occurs, the Contractor shall execute remedial measures as may be necessary to eliminate such unsatisfactory operating conditions and the work and material thereby required shall be furnished and performed at the Contractor's expense.

1.8 GUARANTEE

A. Each Contractor shall guarantee all labor and materials furnished by him for a period of one year unless otherwise noted. Guarantee period shall extend from the time of final written acceptance of the installation or upon usage by a written directive from the Owner, whichever occurs first. The guarantee shall cover the repair or replacement, without additional cost to the Owner, of any defective material or faulty workmanship.

1.9 SERVICE

A. All necessary service of each system, such as adjustment of controls, air distribution, and water balancing valves, mechanical repair of equipment, and other work requiring specialized

training, shall be furnished by the Contractor, at no cost to the Owner, for a period of one year, concurrent with the warranty period specified above.

1.10 SAFETY

A. General
   1. Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work, and Contractor shall comply with all laws governing safety, specifically the "Occupational Safety and Health Standards" and the "Safety and Health Regulations for Construction", state and federal.

B. Hazardous Chemicals
   1. According to OSHA, a hazardous chemical is any chemical which is a physical hazard or a health hazard. This may include items such as paints, solvents, adhesives, sealants, cleaners, etc. If a contractor produces, uses, or stores hazardous chemicals at the workplace, then contractor shall develop, implement, and maintain a hazard communication program in compliance with latest OSHA requirements. In projects with multiple tenants in which the building is partially occupied during the project, contractor shall inform the building manager or owner, according to OSHA guidelines, of any hazardous chemicals being produced, stored, or used in the building so that other tenants may be notified. Contractor shall employ required methods of training, information, handling, ventilation, labeling, storing, disposal, and removal of hazardous chemicals.

1.11 COORDINATION

A. Each Contractor's bid shall include the necessary detail and interconnection work to coordinate his work with the work of other trades. Failure on the part of the Contractor to coordinate with all other trades resulting in interferences shall be sufficient reason to require the Contractor to replace or rebuild the work involved at no extra charge.

1.12 STORAGE OF MATERIALS

A. Each Contractor shall provide temporary storage facilities suitable for equipment stored at the job site. Storage facilities shall be rain-proof and lockable as required. Materials or equipment stored on site but not in a lockable, rain-proof storage facility shall be stored above ground or above slab. Contractor shall take necessary precautions to prevent entry of and/or damage from dirt, trash, water, or vermin. Equipment not properly stored and protected shall be, at the discretion of the Engineer, replaced at no cost to Owner. Roofs are not acceptable storage areas unless specifically allowed in writing by the Engineer.

PART 2 - PRODUCTS

2.1 SUBMITTALS

A. Provide submittal to the A/E within 45 days of commencement of the Contractor’s agreement with the Owner.

B. In addition, submit specific information on equipment, products, and principal materials specified. Indicate and provide names of manufacturers, catalog and model numbers, cut sheets, and such other supplementary information as necessary for evaluation. Include all items mentioned by model number and/or manufacturer's name in the specifications or on the drawings, including but not limited to the following:
   1. Plumbing - Fixtures, piping systems, valves, insulation, equipment and other principal materials.
   2. Fire Protection - Devices, materials and layout of system.

C. Coordinate placement of components and equipment with other contractors to determine any conflicts and assure proper clearances. Prepare and submit large scale coordinated shop drawings (minimum ¼"= 1'-0") of the central mechanical room, central electrical room and each individual electrical room. These drawings shall show to scale the actual sizes of each piece of selected mechanical, plumbing and electrical equipment along with the required clearances for maintenance or removal/replacement. Provide bottom of pipe, duct, equipment or other such vertical obstructions. Provide sections where necessary and as requested by the Engineer for clarity to describe equipment heights, piping elevations and other such clearance issues. Drawings shall be prepared on maximum 30" X 42" sheets using AutoCad® latest format. Submit 3 copies of the drawing sheets and a compact disk or thumb drive with the drawing files.

D. Requirements for submittal
   1. Each submittal shall:
      a. bear a stamp or specific written indication that Contractor has reviewed and approved all submittals prior to submission to Engineer,
      b. have all information deleted by Contractor that pertains to the means and methods of construction or to the fabrication, assembly, installation, or erection process (approval by Engineer shall not extend to these areas unless specifically noted by Engineer),
      c. be clearly marked as to which specific piece of equipment is being submitted, by use of a permanent marker, stamp, etc., to distinguish it from other pieces of equipment that may occur on the same page,
      d. be clearly marked as to which available options are being submitted that are associated with a piece of equipment, and
      e. be complete with respect to quantities, dimensions, specific performance, materials, and similar data to enable Engineer to review the proposed equipment.
   2. Omission by Contractor of any of the above requirements for submittals will subject submittal to automatic rejection without review.
   3. Any submittals received by Engineer that were not requested shall be returned without review of any kind.

E. Substitutions
   1. In Addition, no substitution is allowable without Engineer's written approval ten days prior to bid due date (unless otherwise allowed by Engineer) unless the manufacturer is listed on the Drawings or in the specifications as being a pre-approved alternative manufacturer. Any submittal received without such written approval or prior approval is subject to unqualified rejection.
   2. Contractor's responsibility shall be to verify that submitted substitute equipment will fit in the space available. The Contractor's submittal for acceptance of the substitute shall include a written statement of whether or not such acceptance would require any subsequent or associated changes to the drawings or specifications. Any such changes shall be described in writing, briefly but completely.
   3. The Contractor shall be responsible for the cost of any such modifications due to substitution of materials or equipment for that which was specified or scheduled. The cost shall be complete, that is, it shall include the costs affect on any and all other trades.
   4. The Engineer may request shop drawings of mechanical rooms or systems of the substituted equipment.

F. Installation Instructions
   1. For certain products or systems as identified in subsequent specification sections, the Contractor shall, as required, provide copies of manufacturer's installation instructions with the submittal. When required as such, the installation instructions are considered part of the submittal and their omission may result in automatic rejection of the submittal. Where more than one identical device is scheduled, only one set of installation instructions needs to be submitted, e.g. if seven five-ton split system air conditioners are scheduled, only one five-ton unit installation instructions needs to be submitted. Similarly, if one set of installation instructions is identified by the manufacturer and on the instructions to be applicable to more than one type or size of devices, e.g. if one set of air

conditioner instructions is good for three, four, and five-ton units, then only one instruction set is required for those devices.

2.2 MATERIALS

A. All materials shall be new and of the quality specified. Materials shall be free from defects. Where manufacturers' names are mentioned in these specifications or on the plans, it has been done in order to establish a standard of quality and construction.

B. Contractor will be responsible for transportation of his materials to and on the job, and will be responsible for the storage and protection of his materials and work until the final acceptance of the job. At the end of each work day, each Contractor is responsible for covering or protecting his work or materials that may be susceptible to damage even if such damage is the result of unforeseen causes, e.g. an overnight thunderstorm. Failure to do so will be sufficient cause for rejection of any item in question, and any such item shall be replaced at Contractor's expense.

C. Contractor shall verify that all pieces of equipment will fit through available openings in building and that all equipment can be installed without modification of building structure.

2.3 LABELING

A. Each device for which an independent testing authority has established a standard shall have affixed a label indicating its compliance and listing. Such independent testing authorities shall include, but not be limited to, the following:

A.D.C.	Air Diffusion Council
A.G.A.	American Gas Association
A.M.C.A.	Air Movement and Control Association
A.N.S.I.	American National Standards Institute
A.R.I.	Air-Conditioning and Refrigeration Institute
A.S.H.R.A.E.	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
A.S.M.E.	American Society of Mechanical Engineers
A.S.P.E.	American Society of Plumbing Engineers
A.S.S.E.	American Society of Sanitary Engineers
A.S.T.M.	American Society for Testing and Materials
A.W.W.A.	American Water Works Association
C.T.I.	Cooling Tower Institute
F.M.	Factory Mutual
I.A.P.M.O.	International Association of Plumbing and Mechanical Officials
I.C.B.O.	International Conference of Building Officials
M.S.S.	Manufacturers Standardization Society of the Valve and Fittings Industry
N.A.P.H.C.C.	National Association of Plumbing, Heating, Cooling Contractors
N.B.S.	National Bureau of Standards
N.E.B.B.	National Environmental Balancing Bureau
N.E.C.	National Electric Code
N.E.M.A.	National Electrical Manufacturers Association
N.F.P.A.	National Fire Protection Association
N.R.C.A.	National Roofing Contractors Association
N.S.F.	National Sanitation Foundation
P.D.I.	Plumbing and Drainage Institute
S.B.C.C.I.	Southern Building Code Congress International
S.M.A.C.N.A.	Sheet Metal and Air Conditioning Contractors' National Association
T.I.M.A.	Thermal Insulation Manufacturers Association
U.L.	Underwriters Laboratory

2.4 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Contractor shall prepare and provide four copies of operating and maintenance manuals. Contractor shall deliver these four bound sets to the Engineer for approval. Each manual shall be in a ring binder and shall be indexed with dividers for each section. Delivery of required documents is a condition of final acceptance.

B. Each manual shall contain at least the following:
   1. Certificates of acceptance from inspecting authorities,
   2. Waiver of all liens,
   3. For each piece of equipment:
      a. operating and safety instructions, service manuals, and parts lists applicable to each item of equipment furnished (Contractor shall clearly distinguish in the manual between information that pertains to the particular equipment and information which does not.),
      b. nameplate data and design parameters for equipment,
      c. name, phone number, and address of vendor, manufacturer's representative, and warrantee provider,
      d. start-up report, if applicable,
   4. copies of all shop drawings and as-built drawings (as-built drawings shall be on a reproducible vellum as produced by a xerox or photographic process),
   5. copies of all approved submittals,
   6. warranties with start dates and end dates for each piece of equipment and/or for each system (warranties shall begin on date of substantial completion and acceptance by Owner),
   7. names, phone numbers and addresses of all subcontractors, vendors, manufacturer's representatives, and warrantee providers,
   8. certification letter from each Contractor that each system furnished and installed by that Contractor and/or Subcontractors is started-up, balanced, adjusted and checked for proper operation in accordance with the intent of the contract documents, and
   9. acceptance letter from each Contractor with blanks for date of acceptance and date of expiration of warranties and guarantees.

2.5 TAGGING

A. Equipment to be Tagged: Each major piece of equipment discussed in the specifications or scheduled on the drawings shall have affixed a tag showing the name or function of that piece. The list of equipment to receive tags shall include, but not be limited to, the following:
   1. valves,
      a. tag shall indicate function such as "domestic cold water shut-off", "domestic hot water shut-off", "chilled water shut-off", etc.,
      b. tag may be attached with brass chain,
      c. exceptions that need no tag:
         (1) shut-off valves near to and serving only one device such as a plumbing fixture,
         (2) isolation valves located at or near the device being isolated,
   2. All piping shall be identified as specified elsewhere in these documents.
   3. All major pieces of equipment.
   4. Items which have no unique name, such as air devices, plumbing fixtures, lights, etc., need not have tags.

B. Tags
   1. Material - Tags shall be engraved plastic, brass, or anodized aluminum. Surface mounted tags shall have pressure sensitive adhesive backing. Tags for outdoor use shall be mounted with brass screws.
   2. Lettering - Characters shall be minimum 1/4" in height and shall be of a contrasting color to the tag.
   3. Installation - Surface mounted tags with adhesive backs shall be applied only to clean, dry surfaces. Adhesive tags shall not be applied to surfaces that are subject to condensation or excessive heat.

C. Alternatives
   1. For larger equipment such as large air handlers, switchgear, etc., the use of manufactured stencils (2 inch characters) and spray paint (in contrasting color to equipment) is an acceptable alternative.
   2. Individual adhesive letters are not acceptable.
   3. Other alternatives are acceptable only by submitting samples or manufacturer's literature to Engineer and receiving written permission.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. The workmanship shall, in all respects, be of the highest grade, and all construction shall be done according to the best practices of the trade. Piping, ducting and conduit shall be concealed unless otherwise noted, and installed square to the building lines. Any work not meeting this requirement shall be replaced or rebuilt without extra expense to the Owner.

3.2 INTERIM CLEANING

A. The Contractor shall maintain the work area in a clean condition during the course of the work. All debris, scrap and surplus material shall be removed from the work area on a periodic basis with a minimum of at least once per day.

B. All stored material shall be support above floor level and be protected from becoming damaged or dirty.

C. All installed material shall have open ends closed and protected from entrance of foreign material during construction.

D. Prior to enclosing an area such as a ceiling or chase wall, the installed material and surrounding area shall be thoroughly cleaned. After removing loose material, the area shall be vacuum cleaned or blown out with a portable blower to remove dust from surfaces.

3.3 CUTTING, PATCHING, AND PENETRATIONS

A. No joists, beams, girders, columns, slabs, or other structural elements shall be cut, drilled, or altered in any way by the Contractor without first obtaining written permission and instructions from the Engineer.

B. Where cutting any non-structural element(s) of walls, floors or ceilings is necessary to permit the installation of any work under this contract, or to repair any defects that may appear up to the expiration of the guarantee, such cutting shall be done by Contractor with as little damage as reasonably possible to the element being cut, to adjacent elements, or to the work of other trades.

C. After the necessary work has been completed, the damage shall be repaired by the Contractor, who shall pay all costs of such cutting and patching. All patching or sealing of cuts, penetrations, etc., including final appearance of same, shall be done to the approval of the Engineer. In absence of specific finish instructions, provide finish to match adjacent surfaces.

D. Where a penetration or cutting of a ceiling, wall, or other building membrane is required or made, each such penetration or cut shall be made neatly with a cutting tool such as a saw, sharp knife, etc., and not with an impact tool such as a hammer, screwdriver, wrench, crowbar, etc. Each such penetration or cut shall be no larger than reasonably necessary, and penetrations in occupied or publicly accessible spaces shall have a chrome-plated escutcheon installed large enough to cover the entire opening.

E. Where a penetration is made in a fire-rated building assembly (wall, floor, ceiling, floor-ceiling, roof-ceiling, etc.) or in a membrane of a fire-rated assembly, and no specific firestopping assembly is shown on Drawings, Contractor shall provide and install a firestopping assembly or product as listed in the latest edition of U.L. Fire Resistance Directory. Firestopping assembly or product shall be appropriate for the size and material of the penetrating element, for the penetrated building element, for the presence or lack of insulation, for the size of the annulus around the penetrating element, etc.. Contractor shall include firestopping assembly or product in submittals. Contractor shall review and verify fire-ratings of building assemblies as shown on Architectural plans. Lack of knowledge of a fire-rating of an building assembly shall not relieve Contractor of requirement to install firestopping.

3.4 EQUIPMENT AND PIPING SUPPORTS

A. All supporting systems for piping, equipment, and materials supported by the building structure shall be submitted to the Engineer for approval prior to purchase and installation.

B. Provide 3-1/2” (minimum, or as called out elsewhere) high concrete house keeping pads for all floor mounted equipment and piping. Pad shall have chamfered edges and be painted to match the floor.

3.5 ACCESSIBILITY

A. Access Panels
   1. Access panels shall be provided wherever necessary for possible future replacement, adjustment, or maintenance of operating devices such as machinery, valves, dampers, switches, relays, etc., or to other critical non-operating devices such as pull boxes, inspection parts, gauges, etc. Such access panels shall be provided and installed by Contractor, whether shown on drawings or not, and shall be brought to the attention of Engineer for his approval of type, color, etc. Where access is provided in rated members, the access panels shall be of a type that maintains the integrity of the member penetrated.

B. Access to Equipment
   1. All pipes, tubing, conduit, etc., including, but not limited to, chilled water and heating water piping, domestic cold water and hot water piping, fire sprinkler piping, waste and vent piping, drain piping of any type, electrical conduit, wiring not in conduit, and pneumatic control tubing shall be installed in such a way so as not to prevent and/or not to make unreasonably difficult the removal, operation, use, or maintenance of equipment, access panels or doors, pathways (especially in attics or crawl spaces), observation ports, measurement or balancing devices, junction boxes, etc.. If access for these purposes is prevented or made unreasonably difficult in the opinion of the Engineer, then the Contractor shall make modifications or repairs at no cost to anyone except the Contractor. Such modifications or repairs shall be considered neither complete nor adequate until the Engineer are satisfied that access for the above purposes is achieved.

3.6 FIELD REPORTS

A. The Contractor shall be required to respond all deficiency items noted in Field, Site Visit, Punch List and other such reports provided by the A/E. The response shall address each deficiency item in the same order as the report with annotations as to what was done to remedy the deficiency, who performed the work and when it was done.

3.7 OPERATING TESTS

A. General
   1. After all mechanical and electrical systems have been completed and put into operation, Contractor shall subject each system to an operating test under design conditions to

ensure proper sequence and operation throughout the range of operation. All associated costs of such tests, including labor, fuel, apparatuses, piping, etc., shall be borne by the Contractor.

2. Contractor shall make adjustments as required to ensure proper functioning of all systems. Special tests on individual systems are specified under individual sections. The Contractor shall return to the project during the first year and in the opposite season from which the system was initially operated and shall check the proper operation of the mechanical and electrical systems. Contractor shall perform any adjustments or corrective procedures required for the proper operation of all systems.

B. Notification
   1. Contractor shall give the Engineer seven days' prior notification of any test so that the Engineer will have time to be present if he so desires.

C. Reports
   1. After each test is performed, the Contractor who performed the test shall prepare and issue a report to include the following information:

      a. Project name and location, date of the report,
      b. Contractor's name, address, and telephone number; if the Contractor performing the test is a Subcontractor, indicate also for whom the test is being performed, their name, address, telephone number, and a contact person's name,
      c. the date, or range of dates, of the test,
      d. the name of the Contractor's employee who was responsible for performing or for overseeing the performing of the test,
      e. a brief description of the system being tested,
      f. a brief description of the testing procedure,
      g. a summary of the test result(s),
      h. a brief assertion that the system was tested as stated and that the system complied with the requirements of the contract documents or those of the Authority Having Jurisdiction, whichever is the most stringent, and
      i. a hand-written date and signature of someone who has authority or responsibility from the company that performed test(s), and a hand-written brief note stating that the above information is true and accurate.
   2. If the tested system is tested in parts, then one report may be made after the last part is tested.
   3. The report shall be issued to the Engineer within five working days after the test is completed.
   4. Such reports shall be required of all mechanical or electrical systems which require tests for pressure, water tightness, flow, resistance, or conductivity.

D. Services of a Manufacturer's Representative
   1. Reports: For all major systems or equipment required by subsequent specifications sections to have tests or inspections by a manufacturer's representative, the manufacturer's representative shall prepare a written report to be sent to the Engineer for subsequent distribution to the Engineer, Owner, General Contractor, and to whomever else the Engineer deems necessary. The report shall include at least the following:
      a. date of the visit, name and title of the representative, name and location of the project,
      b. name and title of any observers,
      c. a brief description of the equipment being inspected and/or tested,
      d. a brief discussion of the quality of the installation including any important items (in the manufacturer's experience) that were done correctly, as well as any items that were done incorrectly or not to recommendations,
      e. a list of tests and/or inspections performed and the results of same, and
      f. a brief statement of whether the installation conforms to manufacturer's recommendations and/or requirements, and if not what is required to bring the installation into conformance.

2. Deficiencies and Defects
    a. Contractor shall be responsible for providing all labor and materials, at no cost to anyone except Contractor, to correct any deficiencies or defects reported by manufacturer's representative.
    b. If, in the opinion of the manufacturer's representative, the deficiencies and defects are sufficiently serious, then Contractor shall arrange for, and bear all costs of, another inspection by manufacturer's representative after corrective measures have been taken.
3. The above process shall continue until the manufacturer's representative approves the installation.

3.8 INSTRUCTIONS FOR OWNER

A. Contractor shall instruct the Owner's operating personnel in the operation and maintenance of all mechanical equipment. Contractor shall furnish any special servicing tools required for maintenance.

3.9 DEMONSTRATION

A. Contractor shall conduct a demonstration of the installation upon completion of the work. Prior to this, all work shall have been completed, tested, balanced, and placed in operation. Qualified persons must be present at demonstration to operate all systems and prove the performance of the equipment. The schedule for this demonstration shall be coordinated with the Engineer.

3.10 CLEANUP

A. At substantial completion of the project, thoroughly clean all equipment and systems of all dirt, debris and foreign material.

B. This shall include cleaning coils and fans inside of air handlers, cleaning the interior of duct systems and wiping down the interior of all electrical equipment.

END OF SECTION

SECTION 22 05 05

PIPES, FITTINGS AND VALVES FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SCOPE

A. Section Includes: Pipe and pipe fittings for the following systems:
1. Domestic water piping within 5 feet of building
2. Condensate drainage
3. Sanitary sewer piping within 5 feet of building
4. Storm water piping within 5 feet of building
5. Valves
6. Escutcheons
7. Unions and flanges
8. Gauges
9. identification

1.2 REFERENCES

A. Codes: Provide plumbing piping systems laid out and installed in accordance with the local plumbing codes.

B. Standards: Where national or industry standards are referenced, provide materials and equipment certified by the manufacturer to be in conformance with latest issue of such national standards. Conform to the following standards:

1. American National Standards Institute (ANSI):
   a. A112.21.1M Floor Drains
   b. A112.21.2M Roof Drains
   c. A112.36.2 Cleanouts
   d. B16.12 Cast Iron Threaded Drainage Fittings
   e. B16.18 Cast Copper Alloy Solder Joint Pressure Fittings
   f. B16.22 Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
   g. B16.23 Cast Copper Alloy Solder Joint Drainage Fittings
   h. B16.29 Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings
   i. B16.32 Cast Copper Alloy Solder Joint Fittings for Solvent Drainage Systems
   j. B31.3 Chemical Plant and Petroleum Refinery Piping,
2. American Society for Testing and Materials (ASTM):
   a. A 47 Standard Specification for Ferritic Malleable Iron Castings
   b. A 53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded Seamless
   c. A 74 Standard Specification for Cast Iron Soil Pipe Fittings
   d. A 183 Standard Specification for Carbon Steel Track Bolts and Nuts
   e. A 216/A 216M Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding for High-Temperature Service
   f. A 276 Standard Specification for Stainless and Heat-Resisting Steel Bars and Shapes
   g. A 307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
   h. A 536 Standard Specifications for Ductile Iron Castings

i. B 32 Standard Specification for Solder Metal
j. B 43 Standard Specification for Seamless Red Brass Pipe, Standard Sizes
k. B 61 Standard Specification for Steam or Valve Bronze Castings
l. B 62 Standard Specification for Composition Bronze or Ounce Metal Castings
m. B 75 Standard Specification for Seamless Copper Tube
n. B 88 Standard Specification for Seamless Copper Water Tube
o. B 306 Standard Specification for Copper Drainage Tube (DWV)
p. B 584 Standard Specification for Copper Alloy Sand Castings for General Applications
q. C 62 Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale)
r. C 478 Standard Specification for Precast Reinforced Concrete Manhole Sections
s. C 564 Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings
t. D 1785 Standard Specification for PVC Plastic Pipe, SCH 40, 80, and 120
u. D 2000 Standard Classification System for Rubber Products in Automotive Applications
v. D 2467 Standard Specification for PVC Plastic Pipe Fittings

3. American Water Works Association (AWWA):
   a. C111/A21.11 Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings
   b. C110/A21.10 Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in., for Water and Other Liquids
   c. C606 Grooved and Shouldered Joints
4. Cast Iron Soil Pipe Institute (CISPI):
   a. 301 Hubless Cast-Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications
   b. 310 Patented Joint for Use in Connection with Hubless Cast-Iron Sanitary System
5. Federal Specifications (FS):
   a. RR-F-621 Frames, Covers, Gratings, Steps, Sump and Catch Basin, Manhole
6. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):
   a. SP 70 Cast Iron Gate Valves, Flanged and Threaded Ends
   b. SP 71 Cast Iron Swing Check Valves, Flanged and Threaded Ends
   c. SP 80 Bronze Gate, Globe, Angle and Check Valves
   d. SP 84 Steel Valves - Socket Welding and Threaded Ends
   e. SP 85 Cast Iron Globe and Angle Valves Flanged and Threaded Ends
7. Plumbing and Drainage Institute (PDI):
   a. G101 Testing and Rating Procedure for Grease Interceptors
   b. WH201 Water Hammer Arrestors

1.3 SUBMITTAL

A. Manufacturer's Data: Submit standard manufacturer's published product literature for materials and equipment proposed for use under this Contract, including the following items:
   1. Fixtures – all types
   2. Soil pipe and fittings.
   3. Jointing methods and materials for all piping systems.
   4. Valves - all types.

5. Traps - all types.
6. Access panels.
7. Identification products
8. Hanger and support products

1.4 DELIVERY, STORAGE AND HANDLING

A. Furnish piping with temporary inlet and outlet caps until installation.

B. Store materials material in dry location elevated above floor and protected from entry of debris, dirt and mud

PART 2 - PRODUCTS

2.1 GENERAL

A. Piping materials shall be in conformance with details shown on the Drawings or as specified in the Pipe Specifications in this Section. Valves shall be as specified or approved equivalents. Unless otherwise specified, valve packing shall be the manufacturers standard for the intended service.

B. Close or butt nipples and bushings are not permitted.

C. Pipe size changes shall be made with bell reducers.

D. Bullhead or splitter tees are not permitted.

2.2 PIPING MATERIALS

A. Domestic Water
   1. General - No water piping shall be smaller than 3/4" except at points of connections to individual fixtures or if shown otherwise.
   2. Type "L" hard drawn copper pipe with Pro-Press fittings and joints – no wot work allowed.

B. Condensate Drain - Type M hard copper with solder type wrought copper fittings.

C. Sanitary, Waste, Drain, Vent And Storm Drain Piping
   1. Soil Pipe Above Ground:
      a. Schedule 40 PVC (solid wall pipe) ASTM D1785 with solvent joint DWV fittings. Foam Core pipe is unacceptable

2.3 VALVES

A. General
   1. All valves installed in pipes that are to receive insulation shall have provisions to accommodate the insulation, such as extended length bonnets or handles, without compromising the insulation in anyway (such as reducing its thickness, compressing it, etc.).

B. Plumbing
   1. Shut-off - Apollo, Hammond, Jomar, Nibco, Watts, or approved equivalent
      a. Up through 2" - Ball valve, two-piece brass body, chrome-plated ball with brass stem, threaded connections, full port, Apollo 77-100, Hammond 8301, Jomar T-100, Nibco T-585-70, Watts B-6080
      b. 3” through 4" - Ball valve, brass body, full port, chrome-plated ball with brass stem, Fed. Spec. WWV-35B, Jomar T-100-711 or approved equivalent
   2. Check

a. Up through 2" - in-line, spring loaded, bronze body, threaded with thread-to-sweat adapter, Nibco T-480-Y, Watts 600
b. 2-1/2” and up - spring loaded wafer check, iron body, bronze mounted, flanged ends, aluminum bronze disc, EPDM seats, stainless steel spring and hinge pin, Stockham WG-970, Nibco W-920-W

3. All valves installed underground shall be installed in a concrete valve box with a cast iron cover unless noted otherwise. Box cover shall have the service, e.g. "water" or "gas" cast into metal.
4. Domestic Hot Water Return
   a. Provide self-contained, fully automatic, thermally actuated stainless-steel valve factory set at 105 degrees F.
   b. Provide ball type isolation valves and union.
   c. ANSI/AWWA C800 compliant.
   d. Circuit Solver by ThermOmegaTech.

2.4 ESCUTCHEON PLATES

A. Contractor shall provide and install escutcheons around all pipes passing through walls, ceilings, cabinets, and floors in finished areas. Escutcheon shall be chrome-plated cast brass with set screw.

B. Caulk escutcheons to surface with appropriate material of a color to match surface finish.

2.5 UNIONS

A. Contractor shall provide and install unions for piping connections on each side of all equipment, control valves and at other points where shown on the Drawings. Unions shall be flanged or 150 pound malleable iron with ground bronze seat. Dielectric unions shall isolate dissimilar metals (e.g., copper and ferrous piping) and shall be equal or equivalent to WATTS Series 3000. All valves with threaded connections, regardless of size, shall have as a minimum one union near to one size of the valve.

2.6 IDENTIFICATION AND DETECTION

A. Above Ground
   1. General - Pipes to be identified shall include domestic cold, hot water supply and return, and HVAC heating water. Indicate flow direction at each marker.
   2. Pipes shall be identified by marker bands that conform to ANSI A13.1-1981 requirements as to color of background and characters, and to character size and marker length as shown below:

Fits Pipe O.D., in.	3/4” to 1”	1-1/8” to 2-3/8”	2-1/2” to 3-1/4”	3-3/8” to 4-1/2”	4-5/8” to 7-7/8”	8” to 10”
Letter Height	½”	¾”	1-1/4”	1-1/4”	1-1/4”	2-1/2”
Length of Color Field, in.	8”	8”	12”	12”	12”	24”

*O.D. includes insulation

      a. Markers shall have arrows indicating direction of flow. Markers shall have integral ultraviolet inhibitors.

b. Pipe O.D. Less Than 6 Inches
c. Markers shall be one-piece wrap-around snap-on type of the correct size to grip the pipe (or insulation) firmly enough to prevent slippage, even when installed on a vertical pipe. Product shall be Seton "Setmark" type SNA, Bradysnap-on B-915, or approved equal.
d. Pipe O.D. 6 Inches or More
e. Markers shall be preformed to fit the pipe size, and they shall be secured by stainless steel spring fasteners. Marker and spring fasteners shall be of correct size to grip pipe firmly without slippage even when installed on a vertical pipe, but not so tight as to cut through vapor barrier or service jacket. Product shall be Seton "Setmark" type STR or approved equal.
f. Installation
   (1) Markers shall be installed not more than 20 feet apart, on both sides of a wall where a pipe penetrates (unless underground), at least once in every room, and at every tee connection other than direct equipment connections.

PART 3 - EXECUTION

3.1 FABRICATION AND INSTALLATION OF PIPING

A. General
   1. All piping systems shall be kept clean during all phases of the work. Once fabrication has started on any length of pipe, the open ends of piping shall be kept plugged or capped when erection is not in progress to prevent the entry of dirt and other foreign material. The ends of spare lines shall be left capped or blind flanged when erection has been completed.
   2. Reports for operating tests, as described herein, shall be prepared and issued in conformance with the requirements of Section 22 01 00. Similar reports shall additionally be prepared and issued for procedures of cleaning, flushing, chemical treatment, and disinfection, on any system including, but not limited to, domestic water lines, gas lines, and circulating water systems.
   3. Piping systems shall be fabricated and installed in accordance with ANSI B31.1. The sizes, locations and slopes shall be as shown on the Drawings or as required by this Specification.
   4. All piping systems that are not concealed, covered with insulation or otherwise exposed to view either inside or outside of the building shall be painted in accordance with the architectural painting specifications.

B. Threaded Systems
   1. Burrs shall be removed from mating threads in threaded piping before assembly. Pipe shall be reamed to the nominal inside diameter after cutting. Inner surfaces of all pipes, valves, and fittings shall be smooth, clean and free from metal chips, sand, debris and dirt when erected.
   2. All joints in threaded piping systems shall be made with Teflon Tape or joint sealant of the non-toxic type. Tape or sealant shall be applied to male threads only.

C. Mechanical Joint Systems in Metallic Pipe
   1. Pipe shall be prepared in accordance with manufacturers written instructions. Cutting and/or grooving tools shall be used as provided by the manufacturer of the fittings.
   2. Pipe shall be sufficiently free of indentations, projections, grooves, weld seams, or roll marks on the exterior over the entire gasket seating area to ensure a leak-tight seal.
   3. Gaskets shall be checked to verify that they are suited for the intended service.
   4. Lubrication shall always be applied to the gasket exterior including the lips and/or pipe ends and housing interiors to prevent pinching of the gasket.
   5. Fitting shall be applied without pinching, twisting, or otherwise deforming the gasket, and the retaining bolts shall be tightened down to manufacturer's recommended torques.

6. Contractor shall support and anchor mechanical joint piping systems in accordance with manufacturer's instructions.

3.2 VALVES

A. Valves, accessories and equipment shall be installed as shown on the Drawings. Install valves with stems upright or horizontal, not inverted.

B. Locations of valves as shown on Drawings are approximate. Each valve shall be installed so that adjacent piping or equipment will not interfere with:
   1. access to and operation of the valve operating mechanism, or
   2. access to and use of auxiliary devices such as pressure and/or temperature ports.

C. Valves shall receive identification tags.

3.3 ACCESSIBILITY

A. Contractor shall provide and install access panels where required by Codes or for easy access to any above floor service such as valves which may normally require maintenance. Access panel shall be submitted to Architect for approval, but in general, the panel shall be square, either stainless steel, chrome-plated bronze, or prime coated as preferred by Architect, large enough to permit service of the device, either flush or face-of-wall mounting as preferred by Architect, with anchoring method appropriate for the wall into which it is to be installed, and secured with vandal-proof screws. Product shall be Jay R. Smith 4730 or 4735, Karp Type DSC, or approved equivalent.

END OF SECTION

SECTION 22 05 29

HANGERS AND SUPPORTS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Pipe hangers and supports.
2. Hanger rods.
3. Inserts.
4. Flashing.
5. Equipment curbs.
6. Sleeves.
7. Mechanical sleeve seals.
8. Formed steel channel.
9. Firestopping relating to Plumbing work.
10. Firestopping accessories.
11. Equipment bases and supports.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME B31.1 - Power Piping.
2. ASME B31.5 - Refrigeration Piping.
3. ASME B31.9 - Building Services Piping.

B. ASTM International:
1. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM E119 - Method for Fire Tests of Building Construction and Materials.
3. ASTM E814 - Test Method of Fire Tests of Through Penetration Firestops.
4. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.
5. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.

C. American Welding Society:
1. AWS D1.1 - Structural Welding Code - Steel.

D. FM Global:
1. FM - Approval Guide, A Guide to Equipment, Materials & Services Approved By Factory Mutual Research For Property Conservation.

E. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
2. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
3. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

F. Underwriters Laboratories Inc.:

1. UL 263 - Fire Tests of Building Construction and Materials.
2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
3. UL 1479 - Fire Tests of Through-Penetration Firestops.
4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
5. UL - Fire Resistance Directory.

G. Intertek Testing Services (Warnock Hersey Listed):
1. WH - Certification Listings.

1.3 DEFINITIONS

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction. Install in strict accordance with manufacturers listing instructions.

1.4 SUBMITTALS

A. Shop Drawings: Indicate system layout with location including critical dimensions, sizes, and pipe hanger and support locations and detail of trapeze hangers.

B. Product Data:
1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
2. Firestopping: Submit data on product characteristics, performance and limitation criteria.

C. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.

D. Design Data: Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers. Indicate calculations used to determine load carrying capacity of trapeze, multiple pipe, and riser support hangers.

E. Manufacturer's Installation Instructions:
1. Hangers and Supports: Submit special procedures and assembly of components.
2. Firestopping: Submit preparation and installation instructions.

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

G. Engineering Judgments: For conditions not covered by UL or WH listed designs, submit judgments by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

B. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.6 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 - PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

A. Manufacturers:
1. Carpenter & Paterson Inc.
2. Creative Systems Inc.
3. Flex-Weld, Inc.
4. Globe Pipe Hanger Products Inc.
5. Michigan Hanger Co.
6. Superior Valve Co.
7. Fee and Mason.
8. B-Line.
9. Grinnell
10. Portable Pipe Hanger

B. Piping:
1. Conform to ASME B31.9.
2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron or Carbon steel, adjustable swivel, split ring.
3. Hangers for Hot Pipe Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.
4. Hangers for Hot Pipe Sizes 6 inches and Larger: Adjustable steel yoke, cast iron roll, double hanger.
5. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
6. Multiple or Trapeze Hangers for Hot Pipe Sizes 6 inches and Larger: Steel channels with welded spacers and hanger rods, cast iron roll.
7. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hooks.
8. Wall Support for Pipe Sizes 4 inches and Larger: Welded steel bracket and wrought steel clamp.
9. Wall Support for Hot Pipe Sizes 6 inches and Larger: Welded steel bracket and wrought steel clamp with adjustable steel yoke and cast iron roll.
10. Vertical Support: Steel riser clamp.
11. Roof Support for Pipe Sizes 2 inches and Smaller: Polypropylene (UV Stabilized) Pad type support with adjustable height hot dipped galvanized formed steel channel support. Portable Pipe Hanger SS8-C or similar. Secure pad to roof with mastic compatible with roofing system (verify with roof material supplier). Clamp piping to channel.
12. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
13. Copper Pipe Support: Copper-plated, carbon steel ring.

2.2 ACCESSORIES

A. Hanger Rods: Mild steel threaded both ends, threaded on one end, or continuous threaded.

B. Insulated piping: Reference insulation specifications.

2.3 INSERTS

A. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.4 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage thick galvanized steel.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.

C. Sleeves for Round Ductwork: Galvanized steel.

D. Sleeves for Rectangular Ductwork: Galvanized steel.

E. Sealant: Silicone; refer to Section 07 90 00.

2.5 FORMED STEEL CHANNEL

A. Manufacturers:
1. Allied Tube & Conduit Corp.
2. B-Line Systems
3. Midland Ross Corporation, Electrical Products Division.
4. Unistrut Corp.
5. Powerstrut
6. Kindorf

B. Product Description: 12 gage thick steel, pre-galvanized prior to roll forming, G90 zinc weight conforming to ASTM A653. With holes 1-1/2 inches on center.

C. All channels, bolts, nuts, washers, rods and other fittings used on fabrications exterior to the building shall be hot-dipped galvanized finish – ASTM A123 or A153.

2.6 FIRESTOPPING

A. Manufacturers:
1. Dow Corning Corp.
2. Fire Trak Corp.
3. Hilti Corp.
4. International Protective Coating Corp.
5. 3M fire Protection Products.
6. Specified Technology, Inc.

B. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.

1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
2. Foam Firestopping Compounds: Single component foam compound.

3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
4. Fiber Stuffing and Sealant Firestopping: Composite of mineral or ceramic fiber stuffing insulation with silicone elastomer for smoke stopping.
5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.
7. Firestop Pillows: Formed mineral fiber pillows.

2.7 FIRESTOPPING ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Dam Material: Permanent:
1. Mineral fiberboard.
2. Mineral fiber matting.
3. Sheet metal.
4. Plywood or particle board.
5. Alumina silicate fire board.

C. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

D. General:
1. Furnish UL listed products or products tested by independent testing laboratory.
2. Select products with rating not less than rating of wall or floor being penetrated.

E. Non-Rated Surfaces:
1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where piping is exposed.
2. For exterior wall openings below grade, furnish mechanical sealing device to continuously fill annular space between piping and cored opening or water-stop type wall sleeve.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify openings are ready to receive sleeves.

B. Verify openings are ready to receive firestopping.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

C. Install backing and damming materials to arrest liquid material leakage.

D. Obtain permission from Engineer before using powder-actuated anchors.

E. Do not drill or cut structural members.

3.3 INSTALLATION - INSERTS

A. Install inserts for placement in concrete forms.

B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

3.4 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install in accordance with ASME B31.1, ASME B31.5, and ASME B31.9.

B. Support horizontal piping as scheduled.

C. Install hangers with minimum 1/2 inch space between finished covering and adjacent work.

D. Place hangers within 12 inches of each horizontal elbow.

E. Use hangers with 1-1/2 inch minimum vertical adjustment.

F. Support vertical piping at every floor.

G. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.

H. Support riser piping independently of connected horizontal piping.

I. Provide copper plated hangers and supports for copper piping.

J. Design hangers for pipe movement without disengagement of supported pipe.

K. Prime coat exposed steel hangers and supports. Refer to Section 09 90 00. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

L. Provide clearance in hangers and from structure and other equipment for installation of insulation. Refer to Section 22 07 00.

M. Cut off hanger rods to within 1 inch of support. Finish exposed rods with acorn nut.

N. Coat cut ends of galvanized channel and hardware used exterior of the building with zinc-rich paint such as ColdGalv or similar.

O. Roof piping support: Provide polycarbonate pillow-block type such as Miro Products Model 1.5.

3.5 INSTALLATION - EQUIPMENT BASES AND SUPPORTS

A. Provide housekeeping pads of concrete, minimum 3-1/2 inches thick and extending 6 inches beyond supported equipment. Refer to Section 03 30 00.

B. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.

C. Construct supports of steel members or formed steel channel. Brace and fasten with flanges bolted to structure.

D. Provide rigid anchors for pipes after vibration isolation components are installed.

3.6 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.

E. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with firestopping insulation and caulk. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

F. Install chrome plated steel or stainless-steel escutcheons at finished surfaces.

3.7 INSTALLATION - FIRESTOPPING

A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, and other items, requiring firestopping.

B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.

C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating in accordance with the product listing.

D. Non-Rated Surfaces:
1. Seal opening through non-fire rated wall, partition, floor, ceiling, and roof opening as follows:

a. Install sleeve through opening and extending beyond minimum of 1 inch (25 mm) on both sides of building element.
b. Size sleeve allowing minimum of 1 inch (25 mm) void between sleeve and building element.
c. Install type of firestopping material recommended by manufacturer.

2. Install escutcheons where pipe, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where penetration occurs below finished ceiling.
3. Exterior wall openings below grade: Assemble rubber links of mechanical sealing device to size of piping and tighten in place, in accordance with manufacturer's instructions.
4. Interior partitions: Seal pipe penetrations at clean rooms, laboratories, medical spaces, computer rooms, telecommunication rooms, and data equipment rooms. Apply sealant to both sides of penetration to completely fill annular space between sleeve and pipe.

3.8 FIELD QUALITY CONTROL

A. Inspect installed firestopping for compliance with specifications and submitted schedule.

3.9 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.10 PROTECTION OF FINISHED WORK

A. Protect adjacent surfaces from damage by material installation.

3.11 SCHEDULES

A. Copper and Steel Pipe Hanger Spacing:

PIPE SIZE Inches (mm)	COPPER TUBING MAXIMUM HANGER SPACING Feet (m)	STEEL PIPE MAXIMUM HANGER SPACING Feet (m)	COPPER TUBING HANGER ROD DIAMETER Inches (mm)	STEEL PIPE HANGER ROD DIAMETER Inches (mm)
1/2 (12)	5 (1.5)	7 (2.1)	3/8 (9)	3/8 (9)
3/4 (20)	5 (1.5)	7 (2.1)	3/8 (9)	3/8 (9)
1 (25)	6 (1.8)	7 (2.1)	3/8 (9)	3/8 (9)
1-1/4 (32)	7 (2.1)	7 (2.1)	3/8 (9)	3/8 (9)
1-1/2 (38)	8 (2.4)	9 (2.7)	3/8 (9)	3/8 (9)
2 (50)	8 (2.4)	10 (3)	3/8 (9)	3/8 (9)
2-1/2 (65) (Note 2)	9 (2.7)	11 (3.4)	1/2 (13)	1/2 (13)
3 (75)	10 (3)	12 (3.7)	1/2 (13)	1/2 (13)
4 (100)	12 (3.7)	14 (4.3)	1/2 (13)	5/8 (15)

B. Refer to manufacturer’s recommendations for grooved end piping systems.

C. Refer to manufacturer's recommendations for PVC, CPVC and other piping materials.

D. 20 feet maximum spacing, minimum of one hanger for each pipe section close to joint behind bell. Provide hanger at each change of direction and each branch connection. For pipe sizes 6 inches and smaller, subjected to loadings other than weight of pipe and contents, limit span to maximum spacing for water service steel pipe.

END OF SECTION

SECTION 22 07 00

PLUMBING INSULATION

PART 1 – GENERAL

1.1 SCOPE

A. Furnish all labor and materials necessary for the complete installation of thermal insulation on all hot and cold surfaces which require insulation for heat or cold conservation, comfort and safety of occupants, efficiency or ease or operation, or to prevent condensation or dripping. The insulation shall be complete and effective throughout the building.

B. Section Includes:
1. Piping system insulation.
2. Pipe insulation jackets.
3. Insulation accessories including vapor retarders and accessories.

C. All work shall be performed in a neat and professional manner by a Contractor or Subcontractor regularly engaged in the insulation field. The Mechanical Contractor shall be responsible for the bidding and execution of this work.

D. Any equipment or devices mentioned specifically in this section or any equipment or devices installed by the Mechanical Contractor that can have or cause temperatures low enough to cause condensation shall be adequately insulated and vapor sealed. If equipment, devices, or required insulation product is not specifically mentioned in this section or shown on drawings, the Contractor is required to request and obtain written instructions from the Engineer. If condensation should occur due to inadequate or missing insulation and/or vapor sealing, such damage, including damage to other affected property or building elements, shall be repaired by Contractor at no cost to the Owner.

1.2 GENERAL REQUIREMENTS

A. All insulation inside the building shall have composite (insulation, jacket or facing, and adhesive or cement used to adhere the jacket to the insulation) flame-spread rating of 25 or less and smoke-developed rating of 50 or less as tested under procedure ASTM E-84 and NFPA 255.
1. Insulation with a less stringent flame and smoke rating may be used only with the written permission of the Engineer.
2. Insulation products that meet the 25/50 rating requirement but that melt and drip flammable products, such as closed cell polyethylene products, are not acceptable.

B. Accessories such as adhesive, mastics, cements, and cloth for fittings shall be permanently fire and smoke resistant. Chemicals used for treating paper in jacket laminates shall be unaffected by water or humidity.

C. All adhesives, sealers, vapor barrier coatings, etc., shall be compatible with materials to which they are applied and shall not corrode, soften, or attack such materials in either the wet or dry state. Unless otherwise approved, all adhesives, sealers, coatings, mastics, etc., shall be water based.

D. Any insulation product found to be damaged or has become wet, whether installed or stored, shall be immediately removed and replaced with new product.

E. Thermal insulation shall be applied where needed, including but not limited to the following systems, as described herein:
1. Domestic Cold Water, Hot Water Supply and Return,
2. Condensate Drainage

PART 2 - PRODUCTS

2.1 PIPING INSULATION

A. General
1. Insulation shall be one piece molded fiberglass with a factory applied all service vapor barrier jacket composed of kraft-reinforced foil. Insulation, with or without jacket, shall meet the requirements of ASTM C547, Class 1 and 2. Composite shall be rated by the manufacturer for use on hot or cold surfaces, either exposed or concealed, from -20 to +450 degrees F. Jacket shall conform to ASTM E96 with a permeability not exceeding 0.02 perms. Insulation shrinkage shall be less than 0.5% per ASTM C356. The insulation shall be sized by the manufacturer and correctly provided and installed by the Contractor to fit both the nominal pipe size and also the pipe material, i.e. ferrous versus non-ferrous. Thermal conductivity shall be no greater than 0.27 BTU in./hr/sq. ft./deg. F at a mean temperature of 75 degrees F. Jacket sealing system shall be a self-sealing lap type with pressure-sensitive adhesive. Product shall be Certainteed Snap*Form, Knauf Pipe Insulation, Manville Micro-Lok, Owens/Corning SSL-II or approved equivalent.
2. Fittings, including but not limited to, short and long radius ells, tees, reducers, traps, valves, (except HVAC control valve) shall be insulated with factory made, one-piece, pre-molded high impact PVC covers with pre-cut fiberglass insulation inserts. Acceptable products are Snap*Form by Certainteed, Knauf Fitting Cover System, Zeston 2000 by Manville, or approved equivalent.
3. Piping Exposed to Weather and Piping Exposed Inside of the Building: Provide jacket of 0.016 thick aluminum with longitudinal z-joint similar to J-M "metal-lok". Secure with holding band. On pipe sizes 6 inches and above, aluminum jacket may be secured in place with screws 4 inches on center. Apply aluminum jacket continuously at all fittings including ells, tees, reducers, etc.

B. Thickness
1. Piping Indoors

Service	Pipe Size	Min. Thickness
Hot	1-1/4" and smaller	1-1/2 inch

2. Piping exposed to ambient and conveying water shall have minimum 2-inch thick insulation.

C. Closed Cell Insulation
1. For cold condensate copper drain lines, a flexible, closed-cell, elastomeric insulation shall be used according to the following schedule:

Service	Pipe Size	Min. Thickness
Cold Condensate	all sizes	1/2 inch

2. Insulation shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less as tested by ASTM E84-84A. Insulation shall be in a tubing form, both factory fabricated and also provided and installed correctly by the Contractor for the size and material of the pipe to which it is to be applied. Such insulation in a tape form is not acceptable. Product shall be ARMAFLEX by Armstrong or

approved equivalent.

3. Any cellular insulation product exposed to the exterior of the building shall have 2 coats of Armaflex white protective paint coating.

2.2 EQUIPMENT

A. All equipment shall be factory insulated where specified. All equipment installed in a duct downstream of a cooling coil, for example, a hot water heating coil, a duct furnace, etc., shall have insulation equal to external duct insulation applied to prevent condensation. Alternatively, a closed cell elastomeric insulation in sheet form such as ARMAFLEX may be used in strict conformance with manufacturer's written instructions and these specifications.

PART 3 - EXECUTION

3.1 PIPING INSULATION INSTALLATION

A. General

1. All insulation shall be continuous through wall and ceiling openings and sleeves. Insulation on all cold surfaces, where vapor barrier jackets are used must be applied with a continuous unbroken vapor seal. Hangers, supports, anchor, etc., that are secured directly to cold surfaces must be adequately insulated and vapor sealed to prevent condensation. Where insulation is discontinued, special care shall be taken to taper the insulation to the pipe to allow for vapor barrier to completely seal off end of the insulation.
2. Insulation shall be applied after the surfaces have been thoroughly cleaned and dry and all piping has been tested and proven tight.
3. Circumferential self-sealing strips shall be applied to all butt joints to form a positive closure.
4. On all premolded fiberglass insulation with self-sealing adhesive strips, Contractor shall apply outward clenching staples along the longitudinal strip, on 12 inch centers. Contractor shall additionally apply a mastic along the entire longitudinal strip, taking care to completely cover and seal the staples, and along the circumferential strip at butt joints, completely covering the adhesive strip and at least 3/4 inch on each side of the strip. Mastic shall be Hardcast "Flex-Grip", Rectorseal "Air Lock", or approved equivalent.

B. Supports

1. Metal shields shall be applied between hangers or supports and all types of pipe insulation. Shields shall be formed to fit the insulation and shall extend minimum up to the center line of the pipe. A full coat of insulating sealer shall be applied to the surface of the insulation in contact with the metal shield. The metal shields shall conform to the following chart:

Pipe Size	Metal Ga.	Shield Length
½” to 3"	20 ga.	12"
4” and up	16 ga.	16"

2. On pipes sizes 1-1/2 inches and larger, Contractor shall provide and install at each support, a high density insulation insert to carry the weight of the pipe. Insert shall be premolded to fit the pipe size, shall cover the bottom half of the pipe, and shall be one inch longer at each end than the sheetmetal shield. For pipes that are not susceptible to condensation such as heating water pipes, domestic hot water pipes, etc., the high density insulation insert material shall be calcium silicate, perlite, urethane, or cellular glass. On pipes that are susceptible to condensation such as

chilled water pipes, domestic cold water pipes, etc., the high density insulation material shall be urethane or cellular glass.

C. Fittings
1. On pipes carrying warm or hot liquids, the fitting covers may be secured with tacks or snaps with the butt joints taped at the pipe insulation. On pipes carrying cold liquids, the fitting covers shall receive a vapor barrier sealant similar to that in "Pipes" above.

D. Valves
1. Valves installed in lines carrying cold liquids, i.e. chilled HVAC water, chilled drinking water, or any other liquid of sufficiently low temperature as to cause condensation on the valve body surface, shall have the valve body insulated and vapor sealed up to the bottom of the operating device (handle, wheel, etc.).
2. Valves installed in lines carrying hot liquids, e.g. heating water, domestic hot water, etc., shall be similarly insulated but not vapor sealed.
3. All valves provided and installed by others that are installed in pipe to receive insulation are to have provisions to accommodate the insulation. If the Insulation Contractor encounters a valve that does not have adequate provision to accommodate the insulation without reduction in thickness and without compressing the insulation, then it is the responsibility of the Insulation Contractor not to try to insulate the valve body and to inform the General Contractor immediately so that corrective action may be initiated.
4. Exposed stop valves for plumbing fixtures are excluded.

E. Domestic Cold and Hot Water Piping
1. Domestic cold and hot water mains and runouts shall be insulated as outlined above. Water lines inside interior partitions to single fixtures are required to be insulated.

F. Cold Condensate Drain Lines
1. Insulate and continuously vapor seal each cold condensate drain and drain line from the point where it attaches to a fan-coil unit, air handler, or other device until it discharges into a floor drain, hub drain, or other device. The insulation and vapor seal shall run continuously around any P-trap.

G. Elastomeric Insulation
1. Fittings including, but not limited to, ells, tees, caps, reducers, and valves, shall be adequately insulated and vapor sealed (where required) by using miter-cut tubing or the same insulation in a sheet form.
2. In all cases, all butt joints and seams are to be completely sealed with a contact adhesive manufactured and provided by the insulation manufacturer, such as Armstrong 520 Adhesive.
3. Insulation installed outdoors or exposed to sunlight shall have applied two coats of weather-resistant protective finish, Armstrong Armaflex Finish or approved equivalent. The protective finish shall cover 100% of the exposed insulation.

END OF SECTION

SECTION 23 01 00

GENERAL REQUIREMENTS FOR MECHANICAL WORK

PART 1 - GENERAL

1.1 SCOPE

A. This project involves construction of the project as titled above with associated site work as shown on the plans and described herein.

1.2 DRAWINGS

A. Contract drawings are diagrammatic only and do not give fully dimensioned locations of various elements. Contractor shall determine exact locations from field measurements. Refer also to all architectural, structural, etc., drawings. The lack of specific detail of all offsets, transitions, etc., shall not relieve the Contractor of responsibility to provide such necessary elements to coordinate his work with building construction and with other trades.

1.3 SUBSTITUTION

A. All bids shall be based only on the equipment and materials as scheduled on the drawings and/or as specified, or on equivalent equipment and materials from a pre-approved alternative manufacturer. No bids may be based on a substitute or other alternative without specific written prior approval from the Engineer. Any Bidder who assumes equivalence of products and who bases his/her bid on that assumption, does so at their own risk.

B. A listing of approved alternative manufacturers does not mean that all products of a particular alternative manufacturer are acceptable alternatives to the scheduled items; it merely means that for bidding prior approval is not required. All fixtures and devices must still be submitted according to the prescribed procedures. In addition, some items that have an important visual affect, e.g. electric water coolers, may be required to receive Engineer's or Owner's approval also.

C. Substitute equipment, components, devices and systems shall be fully compatible with the design intent and complete with all required costs included in the bid amount. This includes all modifications to support, structure, pipe and electrical sizing and components needed and all other items necessary for the substitute to perform with no additional cost to the project.

1.4 INTENT

A. All equipment, materials and labor that may be necessary to complete work in accordance with the intent of these plans and specifications shall be furnished by the Contractor without additional cost.

B. All systems represented in the documents shall, unless specifically noted to the contrary, be provided and installed complete with all necessary components to form a complete and functioning system. Submission of bids will be considered confirmation that complete and functional systems have been included in the bids.

C. If any discrepancies or confusion is perceived in the documents, the Contractor shall call such to the attention of the Engineer for clarification of the documents prior to bidding or construction. If any inconsistencies or contradictions within the construction documents are

discovered after the construction contracts are awarded, the Engineer shall determine the intent and correct interpretation of the construction documents.

D. Contractor shall supervise and direct the work competently and efficiently and in accordance with the drawings and specifications. Contractor shall be responsible for using construction means, methods, techniques, sequences, and procedures as are compatible with the project's requirements and will result in a project completed in accordance with the requirements of the drawings and specifications.

1.5 CODES, PERMITS AND FEES

A. Contractor shall comply with all local, state and national codes and shall pay for all applicable costs, fees and permits.

1.6 CONNECTION TO UTILITIES

A. Coordinate connections to utilities directly with utility providers.

B. Verify location, size, elevation, pressure, and any other pertinent data of existing utilities. Additional costs incurred due to a failure to verify such data and to coordinate associated work with respective utility providers shall be borne by Contractor.

C. All costs associated with providing utilities including, but not limited to, connection fees, boring under roads, etc., shall be included in the Contractor's bid price whether such costs are incurred by Contractor or charged by a utility company.

D. Submission of a bid by a Contractor shall be considered an acknowledgment by the Contractor of his compliance with this section.

E. Contractor shall connect water and waste piping and gas service to existing services in accordance with utility company regulations and shall pay all applicable fees and costs. NOTE: Excavate by hand and with caution to locate all utilities prior to machine excavation. Should any service be interrupted, Contractor shall repair it immediately and at no cost to the Owner.

1.7 VIBRATION AND NOISE

A. Each of the various pieces of equipment shall operate without objectionable vibration or noise. All rotating equipment shall be statically and dynamically balanced and shall be mounted, supported, and fastened so that vibration shall not exceed levels specified for the equipment item. The specific type of vibration isolation to be installed shall be submitted to the Engineer for his approval.

B. If, in the opinion of the Engineer, objectionable vibration or noise or transmission thereof to the building occurs, the Contractor shall execute remedial measures as may be necessary to eliminate such unsatisfactory operating conditions, and the work and material thereby required shall be furnished and performed at the Contractor's expense.

1.8 GUARANTEE

A. Each Contractor shall guarantee all labor and materials furnished by him for a period of one year unless otherwise noted. Guarantee period shall extend from the time of final written acceptance of the installation or upon usage by a written directive from the Owner, whichever occurs first. The guarantee shall cover the repair or replacement, without additional cost to the Owner, of any defective material or faulty workmanship.

1.9 SERVICE

A. All necessary service of each system, such as adjustment of controls, air distribution, and water balancing valves, mechanical repair of equipment, and other work requiring specialized training, shall be furnished by the Contractor, at no cost to the Owner, for a period of one year, concurrent with the warranty period specified above.

1.10 SAFETY

A. General
   1. Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work, and Contractor shall comply with all laws governing safety, specifically the "Occupational Safety and Health Standards" and the "Safety and Health Regulations for Construction", state and federal.

B. Hazardous Chemicals
   1. According to OSHA, a hazardous chemical is any chemical which is a physical hazard or a health hazard. This may include items such as paints, solvents, adhesives, sealants, cleaners, etc. If a contractor produces, uses, or stores hazardous chemicals at the workplace, then contractor shall develop, implement, and maintain a hazard communication program in compliance with latest OSHA requirements. In projects with multiple tenants in which the building is partially occupied during the project, contractor shall inform the building manager or owner, according to OSHA guidelines, of any hazardous chemicals being produced, stored, or used in the building so that other tenants may be notified. Contractor shall employ required methods of training, information, handling, ventilation, labeling, storing, disposal, and removal of hazardous chemicals.

1.11 COORDINATION

A. Each Contractor's bid shall include the necessary detail and interconnection work to coordinate his work with the work of other trades. Failure on the part of the Contractor to coordinate with all other trades resulting in interferences shall be sufficient reason to require the Contractor to replace or rebuild the work involved at no extra charge.

1.12 STORAGE OF MATERIALS

A. Each Contractor shall provide temporary storage facilities suitable for equipment stored at the job site. Storage facilities shall be rain-proof and lockable as required. Materials or equipment stored on site but not in a lockable, rain-proof storage facility shall be stored above ground or above slab. Contractor shall take necessary precautions to prevent entry of and/or damage from dirt, trash, water, or vermin. Equipment not properly stored and protected shall be, at the discretion of the Engineer, replaced at no cost to Owner. Roofs are not acceptable storage areas unless specifically allowed in writing by the Engineer.

PART 2 - PRODUCTS

2.1 SUBMITTALS

A. Provide submittal to the A/E within 45 days of commencement of the Contractor’s agreement with the Owner.

B. In addition, submit specific information on equipment, products, and principal materials specified. Indicate and provide names of manufacturers, catalog and model numbers, cut sheets, and such other supplementary information as necessary for evaluation. Include all

items mentioned by model number and/or manufacturer's name in the specifications or on the drawings, including but not limited to the following:

1. HVAC - All equipment, air devices, insulation, piping, valves, controls and other principal materials.

C. Prepare and submit large scale shop drawings (minimum ¼"= 1'-0") of the central mechanical room, central electrical room and each individual electrical room. These drawings shall show to scale the actual sizes of each piece of selected mechanical, plumbing and electrical equipment along with the required clearances for maintenance or removal/replacement. Provide bottom of pipe, duct, equipment or other such vertical obstructions. Provide sections where necessary and as requested by the Engineer for clarity to describe equipment heights, piping elevations and other such clearance issues. Drawings shall be prepared on maximum 30" X 42" sheets using AutoCad® latest format. Submit 3 copies of the drawing sheets and a compact disk or thumb drive with the drawing files.

D. Requirements for submittal
   1. Each submittal shall:
      a. bear a stamp or specific written indication that Contractor has reviewed and approved all submittals prior to submission to Engineer,
      b. have all information deleted by Contractor that pertains to the means and methods of construction or to the fabrication, assembly, installation, or erection process (approval by Engineer shall not extend to these areas unless specifically noted by Engineer),
      c. be clearly marked as to which specific piece of equipment is being submitted, by use of a permanent marker, stamp, etc., so as to distinguish it from other pieces of equipment that may occur on the same page,
      d. be clearly marked as to which available options are being submitted that are associated with a piece of equipment, and
      e. be complete with respect to quantities, dimensions, specific performance, materials, and similar data to enable Engineer to review the proposed equipment.
   2. Omission by Contractor of any of the above requirements for submittals will subject submittal to automatic rejection without review.
   3. Any submittals received by Engineer that were not requested shall be returned without review of any kind.

E. Substitutions
   1. In Addition, no substitution is allowable without Engineer's written approval ten days prior to bid due date (unless otherwise allowed by Engineer) unless the manufacturer is listed on the Drawings or in the specifications as being a pre-approved alternative manufacturer. Any submittal received without such written approval or prior approval is subject to unqualified rejection.
   2. Contractor's responsibility shall be to verify that submitted substitute equipment will fit in the space available. The Contractor's submittal for acceptance of the substitute shall include a written statement of whether or not such acceptance would require any subsequent or associated changes to the drawings or specifications. Any such changes shall be described in writing, briefly but completely.
   3. The Contractor shall be responsible for the cost of any such modifications due to substitution of materials or equipment for that which was specified or scheduled. The cost shall be complete, that is, it shall include the costs affect on any and all other trades.
   4. The Engineer may request shop drawings of mechanical rooms or systems of the substituted equipment.

F. Installation Instructions
   1. For certain products or systems as identified in subsequent specification sections, the Contractor shall, as required, provide copies of manufacturer's installation instructions with the submittal. When required as such, the installation instructions are considered part of the submittal and their omission may result in automatic rejection of the submittal.

Where more than one identical device is scheduled, only one set of installation instructions needs to be submitted, e.g. if seven five-ton split system air conditioners are scheduled, only one five-ton unit installation instructions needs to be submitted. Similarly, if one set of installation instructions is identified by the manufacturer and on the instructions to be applicable to more than one type or size of devices, e.g. if one set of air conditioner instructions is good for three, four, and five-ton units, then only one instruction set is required for those devices.

2.2 MATERIALS

A. All materials shall be new and of the quality specified. Materials shall be free from defects. Where manufacturers' names are mentioned in these specifications or on the plans, it has been done in order to establish a standard of quality and construction.

B. Contractor will be responsible for transportation of his materials to and on the job and will be responsible for the storage and protection of his materials and work until the final acceptance of the job. At the end of each work day, each Contractor is responsible for covering or protecting his work or materials that may be susceptible to damage even if such damage is the result of unforeseen causes, e.g. an overnight thunderstorm. Failure to do so will be sufficient cause for rejection of any item in question, and any such item shall be replaced at Contractor's expense.

C. Contractor shall verify that all pieces of equipment will fit through available openings in building and that all equipment can be installed without modification of building structure.

2.3 LABELING

A. Each device for which an independent testing authority has established a standard shall have affixed a label indicating its compliance and listing. Such independent testing authorities shall include, but not be limited to, the following:

A.D.C.	Air Diffusion Council
A.G.A.	American Gas Association
A.M.C.A.	Air Movement and Control Association
A.N.S.I.	American National Standards Institute
A.R.I.	Air-Conditioning and Refrigeration Institute
A.S.H.R.A.E.	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
A.S.M.E.	American Society of Mechanical Engineers
A.S.P.E.	American Society of Plumbing Engineers
A.S.S.E.	American Society of Sanitary Engineers
A.S.T.M.	American Society for Testing and Materials
A.W.W.A.	American Water Works Association
C.T.I.	Cooling Tower Institute
F.M.	Factory Mutual
I.A.P.M.O.	International Association of Plumbing and Mechanical Officials
I.C.B.O.	International Conference of Building Officials
M.S.S.	Manufacturers Standardization Society of the Valve and Fittings Industry
N.A.P.H.C.C.	National Association of Plumbing, Heating, Cooling Contractors
N.B.S.	National Bureau of Standards
N.E.B.B.	National Environmental Balancing Bureau
N.E.C.	National Electric Code
N.E.M.A.	National Electrical Manufacturers Association
N.F.P.A.	National Fire Protection Association
N.R.C.A.	National Roofing Contractors Association
N.S.F.	National Sanitation Foundation

P.D.I.	Plumbing and Drainage Institute
S.B.C.C.I.	Southern Building Code Congress International
S.M.A.C.N.A.	Sheet Metal and Air Conditioning Contractors' National Association
T.I.M.A.	Thermal Insulation Manufacturers Association
U.L.	Underwriters Laboratory

2.4 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Section 01 78 23 Operation and Maintenance Data.

B. Contractor shall prepare and provide four copies of operating and maintenance manuals. Contractor shall deliver these four bound sets to the Engineer for approval. Each manual shall be in a ring binder and shall be indexed with dividers for each section. Delivery of required documents is a condition of final acceptance.

C. Each manual shall contain at least the following:
   1. Certificates of acceptance from inspecting authorities,
   2. Waiver of all liens,
   3. For each piece of equipment:
      a. operating and safety instructions, service manuals, and parts lists applicable to each item of equipment furnished (Contractor shall clearly distinguish in the manual between information that pertains to the particular equipment and information which does not.),
      b. nameplate data and design parameters for equipment,
      c. name, phone number, and address of vendor, manufacturer's representative, and warrantee provider,
      d. start-up report, if applicable,
   4. copies of all shop drawings and as-built drawings (as-built drawings shall be on a reproducible vellum as produced by a xerox or photographic process),
   5. copies of all approved submittals,
   6. warranties with start dates and end dates for each piece of equipment and/or for each system (warranties shall begin on date of substantial completion and acceptance by Owner),
   7. names, phone numbers and addresses of all subcontractors, vendors, manufacturer's representatives, and warrantee providers,
   8. certification letter from each Contractor that each system furnished and installed by that Contractor and/or Subcontractors is started-up, balanced, adjusted and checked for proper operation in accordance with the intent of the contract documents, and
   9. acceptance letter from each Contractor with blanks for date of acceptance and date of expiration of warranties and guarantees.

2.5 TAGGING

A. Equipment to be Tagged: Each major piece of equipment discussed in the specifications or scheduled on the drawings shall have affixed a tag showing the name or function of that piece. The list of equipment to receive tags shall include, but not be limited to, the following:
   1. air moving or air conditioning equipment,
      a. air handlers,
      b. heat pump units,
      c. fan-coil units,
      d. exhaust fans,
      e. variable air volume boxes
   2. valves,
      a. tag shall indicate function such as "domestic cold water shut-off", "domestic hot water shut-off", "chilled water shut-off", etc.,

b. tag shall be attached with brass chain,
c. exceptions that need no tag:
(1) control valves for HVAC at or near coils,
(2) shut-off valves near to and serving only one device such as a plumbing fixture or a fan-coil unit,
(3) isolation valves located at or near the device being isolated,
3. Items which have no unique name, such as air devices, plumbing fixtures, lights, etc., need not have tags.

B. Tags
1. Material - Tags shall be engraved plastic, brass, or anodized aluminum. Surface mounted tags shall have pressure sensitive adhesive backing. Tags for outdoor use shall be mounted with brass screws.
2. Lettering - Characters shall be minimum 1/4" in height and shall be of a contrasting color to the tag.
3. Installation - Surface mounted tags with adhesive backs shall be applied only to clean, dry surfaces. Adhesive tags shall not be applied to surfaces that are subject to condensation or excessive heat.

C. Alternatives
1. For larger equipment such as large air handlers, switchgear, etc., the use of manufactured stencils (2 inch characters) and spray paint (in contrasting color to equipment) is an acceptable alternative.
2. Individual adhesive letters are not acceptable.
3. Other alternatives are acceptable only by submitting samples or manufacturer's literature to Engineer and receiving written permission.

2.6 MOTORS AND MOTOR STARTERS

A. Motors
1. Unless scheduled otherwise, each electric motor shall be high efficiency type.
2. Each single-phase motor larger than 1/10 (one-tenth) horsepower and each single phase motor that drives a pump or compressor shall be a permanent split capacitor type. Each polyphase squirrel-cage induction motor shall be an energy efficient type as defined in NEMA document No. MG1-1987.

B. Motor Connections
1. Motor starters, unless scheduled otherwise or packaged with the equipment, shall be provided and installed by the Electrical Contractor. The Mechanical Contractor shall provide to the Electrical Contractor a complete list of motors requiring starters or other connections, including power and control, and shall include the following information for each such motor:
a. a tag reference to the piece of equipment for which the motor is needed,
b. the voltage and number of phases,
c. the motor requirements in terms of horsepower, running load amps, full load amps, etc.,
d. any other pertinent information required or requested by the Electrical Contractor.
2. The Electrical Contractor shall receive and review the above information and advise the Mechanical Contractor and Engineer of any discrepancies or required modifications. The Electrical Contractor shall provide and install the correct starter, conductors, and other devices per the electrical drawings, specifications, and National Electrical Code.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. The workmanship shall, in all respects, be of the highest grade, and all construction shall be done according to the best practices of the trade. Piping, ducting and conduit shall be concealed unless otherwise noted, and installed square to the building lines. Any work not meeting this requirement shall be replaced or rebuilt without extra expense to the Owner.

3.2 INTERIM CLEANING

A. The Contractor shall maintain the work area in a clean condition during the course of the work. All debris, scrap and surplus material shall be removed from the work area on a periodic basis with a minimum of at least once per day.

B. All stored material shall be support above floor level and be protected from becoming damaged or dirty.

C. All installed material shall have open ends closed and protected from entrance of foreign material during construction.

D. Prior to enclosing an area such as a ceiling or chase wall, the installed material and surrounding area shall be thoroughly cleaned. After removing loose material, the area shall be vacuum cleaned or blown out with a portable blower to remove dust from surfaces.

3.3 CUTTING, PATCHING, AND PENETRATIONS

A. No joists, beams, girders, columns, slabs, or other structural elements shall be cut, drilled, or altered in any way by the Contractor without first obtaining written permission and instructions from the Engineer.

B. Where cutting any non-structural element(s) of walls, floors or ceilings is necessary to permit the installation of any work under this contract, or to repair any defects that may appear up to the expiration of the guarantee, such cutting shall be done by Contractor with as little damage as reasonably possible to the element being cut, to adjacent elements, or to the work of other trades.

C. After the necessary work has been completed, the damage shall be repaired by the Contractor, who shall pay all costs of such cutting and patching. All patching or sealing of cuts, penetrations, etc., including final appearance of same, shall be done to the approval of the Engineer. In absence of specific finish instructions, provide finish to match adjacent surfaces.

D. Where a penetration or cutting of a ceiling, wall, or other building membrane is required or made, each such penetration or cut shall be made neatly with a cutting tool such as a saw, sharp knife, etc., and not with an impact tool such as a hammer, screwdriver, wrench, crowbar, etc. Each such penetration or cut shall be no larger than reasonably necessary, and penetrations in occupied or publicly accessible spaces shall have a chrome-plated escutcheon installed large enough to cover the entire opening.

E. Where a penetration is made in a fire-rated building assembly (wall, floor, ceiling, floor-ceiling, roof-ceiling, etc.) or in a membrane of a fire-rated assembly, and no specific firestopping assembly is shown on Drawings, Contractor shall provide and install a firestopping assembly or product as listed in the latest edition of U.L. Fire Resistance Directory. Firestopping assembly or product shall be appropriate for the size and material of the penetrating element, for the penetrated building element, for the presence or lack of insulation, for the size of the annulus around the penetrating element, etc. Contractor shall include firestopping assembly

or product in submittals. Contractor shall review and verify fire-ratings of building assemblies as shown on Architectural plans. Lack of knowledge of a fire-rating of an building assembly shall not relieve Contractor of requirement to install firestopping.

3.4 EQUIPMENT AND PIPING SUPPORTS

A. All supporting systems for piping, equipment, and materials supported by the building structure shall be submitted to the Engineer for approval prior to purchase and installation.

B. Provide 3-1/2" (minimum, or as called out elsewhere) high concrete house keeping pads for all floor mounted equipment and piping. Pad shall have chamfered edges and be painted to match the floor.

3.5 ACCESSIBILITY

A. Access Panels
   1. Access panels shall be provided wherever necessary for possible future replacement, adjustment, or maintenance of operating devices such as machinery, valves, dampers, switches, relays, etc., or to other critical non-operating devices such as pull boxes, inspection parts, gauges, etc. Such access panels shall be provided and installed by Contractor, whether or not shown on drawings, and shall be brought to the attention of Engineer for his approval of type, color, etc. Where access is provided in rated members, the access panels shall be of a type that maintains the integrity of the member penetrated.

B. Access to Equipment
   1. All pipes, tubing, conduit, etc., including, but not limited to, chilled water and heating water piping, domestic cold water and hot water piping, fire sprinkler piping, waste and vent piping, drain piping of any type, electrical conduit, wiring not in conduit, and pneumatic control tubing shall be installed in such a way so as not to prevent and/or not to make unreasonably difficult the removal, operation, use, or maintenance of equipment, access panels or doors, pathways (especially in attics or crawl spaces), observation ports, measurement or balancing devices, junction boxes, etc.. If access for these purposes is prevented or made unreasonably difficult in the opinion of the Engineer, then the Contractor shall make modifications or repairs at no cost to anyone except the Contractor. Such modifications or repairs shall be considered neither complete nor adequate until the Engineer are satisfied that access for the above purposes is achieved.

3.6 FIELD REPORTS

A. The Contractor shall be required to respond all deficiency items noted in Field, Site Visit, Punch List and other such reports provided by the A/E. The response shall address each deficiency item in the same order as the report with annotations as to what was done to remedy the deficiency, who performed the work and when it was done.

3.7 OPERATING TESTS

A. General
   1. After all mechanical and electrical systems have been completed and put into operation, Contractor shall subject each system to an operating test under design conditions to ensure proper sequence and operation throughout the range of operation. All associated costs of such tests, including labor, fuel, apparatuses, piping, etc., shall be borne by the Contractor.
   2. Contractor shall make adjustments as required to ensure proper functioning of all systems. Special tests on individual systems are specified under individual sections. The

Contractor shall return to the project during the first year and in the opposite season from which the system was initially operated and shall check the proper operation of the mechanical and electrical systems. Contractor shall perform any adjustments or corrective procedures required for the proper operation of all systems.

B. Notification
   1. Contractor shall give the Engineer seven day's prior notification of any test so that the Engineer will have time to be present if he so desires.

C. Reports
   1. After each test is performed, the Contractor who performed the test shall prepare and issue a report to include the following information:

      a. Project name and location, date of the report,
      b. Contractor's name, address, and telephone number; if the Contractor performing the test is a Subcontractor, indicate also for whom the test is being performed, their name, address, telephone number, and a contact person's name,
      c. the date, or range of dates, of the test,
      d. the name of the Contractor's employee who was responsible for performing or for overseeing the performing of the test,
      e. a brief description of the system being tested,
      f. a brief description of the testing procedure,
      g. a summary of the test result(s),
      h. a brief assertion that the system was tested as stated and that the system complied with the requirements of the contract documents or those of the Authority Having Jurisdiction, whichever is the most stringent, and
      i. a hand-written date and signature of someone who has authority or responsibility from the company that performed test(s), and a hand-written brief note stating that the above information is true and accurate.
   2. If the tested system is tested in parts, then one report may be made after the last part is tested.
   3. The report shall be issued to the Engineer within five working days after the test is completed.
   4. Such reports shall be required of all mechanical or electrical systems which require tests for pressure, water tightness, flow, resistance, or conductivity.

D. Services of a Manufacturer's Representative
   1. Reports: For all major systems or equipment required by subsequent specifications sections to have tests or inspections by a manufacturer's representative, the manufacturer's representative shall prepare a written report to be sent to the Engineer for subsequent distribution to the Engineer, Owner, General Contractor, and to whomever else the Engineer deems necessary. The report shall include at least the following:
      a. date of the visit, name and title of the representative, name and location of the project,
      b. name and title of any observers,
      c. a brief description of the equipment being inspected and/or tested,
      d. a brief discussion of the quality of the installation including any important items (in the manufacturer's experience) that were done correctly, as well as any items that were done incorrectly or not to recommendations,
      e. a list of tests and/or inspections performed and the results of same, and
      f. a brief statement of whether the installation conforms to manufacturer's recommendations and/or requirements, and if not what is required to bring the installation into conformance.
   2. Deficiencies and Defects

a. Contractor shall be responsible for providing all labor and materials, at no cost to anyone except Contractor, to correct any deficiencies or defects reported by manufacturer's representative.
b. If, in the opinion of the manufacturer's representative, the deficiencies and defects are sufficiently serious, then Contractor shall arrange for, and bear all costs of, another inspection by manufacturer's representative after corrective measures have been taken.

3. The above process shall continue until the manufacturer's representative approves the installation.

3.8 INSTRUCTIONS FOR OWNER

A. Contractor shall instruct the Owner's operating personnel in the operation and maintenance of all mechanical equipment. Contractor shall furnish any special servicing tools required for maintenance.

3.9 DEMONSTRATION

A. Contractor shall conduct a demonstration of the installation upon completion of the work. Prior to this, all work shall have been completed, tested, balanced, and placed in operation. Qualified persons must be present at demonstration to operate all systems and prove the performance of the equipment. The schedule for this demonstration shall be coordinated with the Engineer.

3.10 CLEANUP

A. At substantial completion of the project, thoroughly clean all equipment and systems of all dirt, debris and foreign material.

B. This shall include cleaning coils and fans inside of air handlers, cleaning the interior of duct systems and wiping down the interior of all electrical equipment.

C. Remove all unused temporary wiring or construction lighting and power and all unused material from above the ceilings and from hidden recesses.

END OF SECTION

SECTION 23 05 03

PIPES AND TUBES FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Pipe and pipe fittings for the following systems:
1. Chilled water piping.
2. Drains and overflows
3. Unions and flanges.
4. Gauges
5. Air vents
6. Pressure/Temperature ports

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME B16.3 – Malleable Iron Threaded Fittings.
2. ASME B16.4 – Gray Iron Threaded Fittings.
3. ASME B16.18 – Cast Copper Alloy Solder Joint Pressure Fittings.
4. ASME B16.22 – Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
5. ASME B16.26 – Cast Copper Alloy Fittings for Flared Copper Tubes.
6. ASME B31.1 – Power Piping.
7. ASME B31.9 – Building Services Piping.
8. ASME B36.10M – Welded and Seamless Wrought Steel Pipe.
9. ASME Section IX – Boiler and Pressure Vessel Code – Welding and Brazing Qualifications.

B. ASTM International:
1. ASTM A53/A53M – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. ASTM A234/A234M – Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
3. ASTM B32 – Standard Specification for Solder Metal.
4. ASTM B68 – Standard Specification for Seamless Copper Tube, Bright Annealed.
5. ASTM B68M – Standard Specification for Seamless Copper Tube, Bright Annealed (Metric).
6. ASTM B75 – Standard Specification for Seamless Copper Tube.
7. ASTM B75M – Standard Specification for Seamless Copper Tube (Metric).
8. ASTM B88 – Standard Specification for Seamless Copper Water Tube.
9. ASTM B88M – Standard Specification for Seamless Copper Water Tube (Metric).
10. ASTM B280 – Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.
11. ASTM B584 – Standard Specification for Copper Alloy Sand Castings for General Applications.
12. ASTM F1476 – Standard Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications.

C. American Welding Society:
   1. AWS A5.8 – Specification for Filler Metals for Brazing and Braze Welding.
   2. AWS D1.1 – Structural Welding Code – Steel.

1.3 SUBMITTALS

A. Shop Drawings: Indicate layout of piping systems, including equipment, critical dimensions, and sizes.

B. Product Data: Submit data on pipe materials and fittings. Submit manufacturers catalog information.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ASME B31.9 code for installation of piping systems and ASME Section IX for welding materials and procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Furnish temporary end caps and closures on piping and fittings. Maintain in place until installation.

B. Store material elevated from floor level and maintain to prevent entry of debris, dirt and mud.

C. Protect piping from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.6 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 – PRODUCTS

2.1 CHILLED WATER ABOVE GROUND

A. Steel Pipe: ASTM A53/A53M, Schedule 40, black.
   1. Fittings: ASME B16.3, malleable iron or ASTM A234/A234M, forged steel welding type.
   2. Joints: Threaded for pipe 2 inch and smaller; welded or groove joint for pipe 2-1/2 inches and larger.

B. Steel Pipe: ASTM A53/A53M Schedule 40, black, cut grooved ends.
   1. Fittings: ASTM A395/A395M and ASTM A536 ductile iron, or ASTM A234/A234M carbon steel, grooved ends.
   2. Joints: Grooved mechanical couplings meeting ASTM F1476.
      a. Housing Clamps: ASTM A395/A395M and ASTM A536 ductile iron, enamel coated, compatible with steel piping sizes, flexible type.

b. Gasket: Elastomer composition for operating temperature range from –30 degrees F to 180degrees F.
c. Accessories: Stainless steel bolts, nuts, and washers.

C. Copper Tubing: ASTM B88, Type L hard drawn.
1. Fittings: ASME B16.18, cast brass, or ASME B16.22, solder wrought copper.
2. Joints: Solder, lead free, ASTM B32, 95-5 tin-antimony, or tin and silver, with melting range 430 to 535 degrees F. At Contractor's option, joints may be press type fittings similar and equivalent to ProPress.

D. Copper Tubing: ASTM B88, Type L hard drawn, rolled grooved ends.
1. Fittings: ASME B16.22 wrought copper and bronze, grooved ends.
2. Joints: Grooved mechanical couplings meeting ASTM F1476.
a. Housing Clamps: ASTM A395/A395M and ASTM A536 ductile iron, enamel coated, compatible with copper tubing sizes, to engage and lock designed to permit some angular deflection, contraction, and expansion.
b. Gasket: Elastomer composition for operating temperature range from –30 degrees F to 180 degrees F.
c. Accessories: Stainless steel bolts, nuts, and washers.

2.2 EQUIPMENT DRAINS AND OVERFLOWS

A. Copper Tubing: ASTM B88 Type DWV, hard drawn.
1. Fittings: ASME B16.18, cast brass, or ASME B16.22 solder wrought copper.
2. Joints: Solder, lead free, ASTM B32, 95-5 tin-antimony, or tin and silver, with melting range 430 to 535 degrees F.

2.3 UNIONS AND FLANGES

A. Unions for Pipe 2 inches and Smaller:
1. Ferrous Piping: Class 150, malleable iron, threaded.
2. Copper Piping: Class 150, bronze unions with soldered.
3. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

B. Flanges for Pipe 2-1/2 inches and Larger:
1. Ferrous Piping: Class 150, forged steel, slip-on or weld-neck flanges.
2. Copper Piping: Class 150, slip-on bronze flanges.
3. Gaskets: 1/16 inch thick preformed neoprene gaskets.

PART 3 - EXECUTION

3.1 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions.

D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.

3.2 INSTALLATION - ABOVE GROUND PIPING

A. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

B. Install piping to maintain headroom without interfering with use of space or taking more space than necessary.

C. Group piping whenever practical at common elevations.

D. Sleeve pipe passing through partitions, walls and floors.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

G. Provide access where valves and fittings are not accessible.

H. Install non-conducting dielectric connections wherever jointing dissimilar metals.

I. Slope piping and arrange systems to drain at low points.

J. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

K. Install piping penetrating roofed areas to maintain integrity of roof assembly.

L. Install valves in accordance with Section 23 05 23.

M. Insulate piping. Refer to Section 23 07 00.

N. Install pipe identification.

O. Seal all penetrations of walls, floors and ceiling or other similar surfaces with appropriate sealant material.

3.3 FIELD QUALITY CONTROL

A. Test water piping systems in accordance with ASME B31.9.

3.4 CLEANING

A. After completion, fill, clean, and treat chilled water piping system.

END OF SECTION

SECTION 23 05 23

GENERAL DUTY VALVES FOR HVAC PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Ball valves.
   2. Plug valves.
   3. Globe valves
   4. Gate valves

1.2 REFERENCES

A. ASTM International:
   1. ASTM A216/A216M - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service.

B. Manufacturers Standardization Society of the Valve and Fittings Industry:
   1. MSS SP 67 - Butterfly Valves.
   2. MSS SP 71 - Cast Iron Swing Check Valves, Flanged and Threaded Ends.
   3. MSS SP 78 - Cast Iron Plug Valves, Flanged and Threaded Ends.
   4. MSS SP 80 - Bronze Gate, Globe, Angle and Check Valves.
   5. MSS SP 85 - Cast Iron Globe & Angle Valves, Flanged and Threaded.
   6. MSS SP 110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

1.3 SUBMITTALS

A. Product Data: Submit manufacturers catalog information with valve data and ratings for each service.

B. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures.

C. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit installation instructions, spare parts lists, exploded assembly views.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Provide temporary protective coating on cast iron and steel valves.

PART 2 - PRODUCTS

2.1 BALL VALVES

A. Manufacturers:
1. Crane Valve, North America
2. Hammond Valve 8301.
3. Milwaukee Valve Company.
4. NIBCO, Inc. T-585-70
5. Stockham Valves & Fittings.
6. Jomar T-100
7. Apollo 77-100
8. Watts B-6080

B. 2 inches and Smaller: MSS SP 110, 400 psi WOG, two-piece bronze body, chrome plated brass ball, full port, Teflon seats, blow-out proof stem, threaded ends, extended lever handle.

2.2 PLUG VALVES

A. Manufacturers:
1. DeZURIK, Unit of SPX Corp. Model.
2. Flow Control Equipment, Inc. Model.

B. 2 inches and Smaller: MSS SP 78, Class 150, semi-steel construction, rectangular port, pressure lubricated, teflon packing, threaded ends. Furnish one plug valve wrench for every ten plug-valves with minimum of one wrench.

C. 2-1/2 inches and Larger: MSS SP 78, Class 150semi-steel construction, rectangular port, pressure lubricated, teflon packing, flanged ends. Furnish wrench-operated.

2.3 GATE and GLOBE VALVES

A. Manufacturers:
1. Crane Valve, North America Model.
2. Hammond Valve Model.
3. Milwaukee Valve Company Model.
4. NIBCO, Inc. Model.
5. Stockham Valves & Fittings

B. Gate: 2 inches and smaller
1. Rated for 125 psi steam. MSS SP 80, Class 200, bronze body, bronze trim, union bonnet, rising stem, hand-wheel, solid wedge disc, stainless steel rings, threaded ends.

C. Globe: 2 inches and smaller
1. MSS SP 80, Class 200, bronze body, bronze trim, union bonnet, rising stem, hand wheel, renewable stainless steel seat ring and disc, threaded ends.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify piping system is ready for valve installation.

3.2 INSTALLATION

A. Install valves with stems upright or horizontal, not inverted.

B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.

C. Install 3/4 inch ball valves with cap for drains at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.

D. Install valves with clearance for installation of insulation and allowing access.

E. Provide access where valves and fittings are not accessible.

3.3 VALVE APPLICATIONS

A. Install shutoff and drain valves at locations indicated on Drawings in accordance with this Section.

B. Install ball or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.

C. Install plug, ball or butterfly valves for throttling, bypass, or manual flow control services.

D. Install plug valves in chilled and heating for throttling service.

END OF SECTION

SECTION 23 05 29

HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Pipe hangers and supports.
2. Hanger rods.
3. Inserts.
4. Sleeves.
5. Formed steel channel.
6. Firestopping relating to HVAC work.
7. Firestopping accessories.
8. Equipment bases and supports.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME B31.1 - Power Piping.
2. ASME B31.5 - Refrigeration Piping.
3. ASME B31.9 - Building Services Piping.

B. ASTM International:
1. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM E119 - Method for Fire Tests of Building Construction and Materials.
3. ASTM E814 - Test Method of Fire Tests of Through Penetration Firestops.
4. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.
5. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.

C. American Welding Society:
1. AWS D1.1 - Structural Welding Code - Steel.

D. FM Global:
1. FM - Approval Guide, A Guide to Equipment, Materials & Services Approved By Factory Mutual Research For Property Conservation.

E. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
2. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
3. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

F. Underwriters Laboratories Inc.:
1. UL 263 - Fire Tests of Building Construction and Materials.
2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
3. UL 1479 - Fire Tests of Through-Penetration Firestops.
4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
5. UL - Fire Resistance Directory.

G. Intertek Testing Services (Warnock Hersey Listed):
1. WH - Certification Listings.

1.3 DEFINITIONS

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction. Install in strict accordance with manufacturers listing instructions.

1.4 SUBMITTALS

A. Shop Drawings: Indicate system layout with location including critical dimensions, sizes, and pipe hanger and support locations and detail of trapeze hangers.

B. Product Data:
1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
2. Firestopping: Submit data on product characteristics, performance and limitation criteria.

C. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.

D. Design Data: Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers. Indicate calculations used to determine load carrying capacity of trapeze, multiple pipe, and riser support hangers.

E. Manufacturer's Installation Instructions:
1. Hangers and Supports: Submit special procedures and assembly of components.
2. Firestopping: Submit preparation and installation instructions.

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

G. Engineering Judgments: For conditions not covered by UL or WH listed designs, submit judgments by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

B. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.6 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.7 WARRANTY

A. Section 23 01 00 – General Requirements: Guarantee

PART 2 - PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

A. Manufacturers:
1. Carpenter & Paterson Inc.
2. Creative Systems Inc.
3. Flex-Weld, Inc.
4. Globe Pipe Hanger Products Inc.
5. Michigan Hanger Co.
6. Superior Valve Co.
7. Fee and Mason.
8. B-Line.
9. Grinnell.

B. Hydronic Piping:
1. Conform to ASME B31.9.
2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron or Carbon steel, adjustable swivel, split ring.
3. Hangers for Hot Pipe Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.
4. Hangers for Hot Pipe Sizes 6 inches and Larger: Adjustable steel yoke, cast iron roll, double hanger.
5. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
6. Multiple or Trapeze Hangers for Hot Pipe Sizes 6 inches and Larger: Steel channels with welded spacers and hanger rods, cast iron roll.
7. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hooks.
8. Wall Support for Pipe Sizes 4 inches and Larger: Welded steel bracket and wrought steel clamp.
9. Wall Support for Hot Pipe Sizes 6 inches and Larger: Welded steel bracket and wrought steel clamp with adjustable steel yoke and cast iron roll.
10. Vertical Support: Steel riser clamp.
11. Roof Support for Pipe Sizes 2 inches and Smaller: Polypropylene (UV Stabilized) Pad type support with adjustable height hot dipped galvanized formed steel channel support. Portable Pipe Hanger SS8-C or similar. Secure pad to roof with mastic compatible with roofing system (verify with roof material supplier). Clamp piping to channel.
12. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
13. Copper Pipe Support: Copper-plated, carbon steel ring.

2.2 ACCESSORIES

A. Hanger Rods: Mild steel threaded both ends, threaded on one end, or continuous threaded.

2.3 INSERTS

A. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.4 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage thick galvanized steel.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.

C. Sleeves for Round Ductwork: Galvanized steel.

D. Sleeves for Rectangular Ductwork: Galvanized steel.

2.5 FORMED STEEL CHANNEL

A. Manufacturers:
1. Allied Tube & Conduit Corp.
2. B-Line Systems
3. Midland Ross Corporation, Electrical Products Division.
4. Unistrut Corp.
5. Powerstrut
6. Kindorf

B. Product Description: Galvanized 12 gage thick steel. With holes 1-1/2 inches on center.

2.6 FIRESTOPPING

A. Manufacturers:
1. Dow Corning Corp.
2. Fire Trak Corp.
3. Hilti Corp.
4. International Protective Coating Corp.
5. 3M fire Protection Products.
6. Specified Technology, Inc.

B. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.

1. Silicone Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
2. Foam Firestopping Compounds: Single component foam compound.
3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
4. Fiber Stuffing and Sealant Firestopping: Composite of mineral or ceramic fiber stuffing insulation with silicone elastomer for smoke stopping.
5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.

6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.
7. Firestop Pillows: Formed mineral fiber pillows.

2.7 FIRESTOPPING ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Dam Material: Permanent:
1. Mineral fiberboard.
2. Mineral fiber matting.
3. Sheet metal.
4. Plywood or particle board.
5. Alumina silicate fire board.

C. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

D. General:
1. Furnish UL listed products or products tested by independent testing laboratory.
2. Select products with rating not less than rating of wall or floor being penetrated.

E. Non-Rated Surfaces:
1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where piping is exposed.
2. For exterior wall openings below grade, furnish mechanical sealing device to continuously fill annular space between piping and cored opening or water-stop type wall sleeve.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify openings are ready to receive sleeves.

B. Verify openings are ready to receive firestopping.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

C. Install backing and damming materials to arrest liquid material leakage.

D. Obtain permission from Engineer before using powder-actuated anchors.

E. Do not drill or cut structural members.

3.3 INSTALLATION - INSERTS

A. Install inserts for placement in concrete forms.

B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

3.4 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install in accordance with ASME B31.1, ASME B31.5, ASME 31.9.

B. Support horizontal piping as scheduled.

C. Install hangers with minimum 1/2 inch space between finished covering and adjacent work.

D. Place hangers within 12 inches of each horizontal elbow.

E. Use hangers with 1-1/2 inch minimum vertical adjustment.

F. Support vertical piping at every floor.

G. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.

H. Support riser piping independently of connected horizontal piping.

I. Provide copper plated hangers and supports for copper piping.

J. Design hangers for pipe movement without disengagement of supported pipe.

K. Prime coat exposed steel hangers and supports. Refer to Section 09 90 00. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

L. Provide clearance in hangers and from structure and other equipment for installation of insulation. Refer to Section 22 07 00.

3.5 INSTALLATION - EQUIPMENT BASES AND SUPPORTS

A. Provide housekeeping pads of concrete, minimum 3-1/2 inches thick and extending 6 inches beyond supported equipment.

B. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.

C. Construct supports of steel members or formed steel channel. Brace and fasten with flanges bolted to structure.

D. Provide rigid anchors for pipes after vibration isolation components are installed.

3.6 INSTALLATION - FLASHING

A. Provide flexible flashing and metal Counterflashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

B. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms for sound control.

C. Provide curbs for roof installations 14 inches minimum high above roofing surface. Flash and counter-flash with sheet metal; seal watertight. Attach Counterflashing to equipment and lap base flashing on roof curbs. Flatten and solder joints.

D. Adjust storm collars tight to pipe with bolts; caulk around top edge. Use storm collars above roof jacks. Screw vertical flange section to face of curb.

3.7 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.

E. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with firestopping insulation and caulk. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

F. Install chrome plated steel or stainless steel escutcheons at finished surfaces.

3.8 INSTALLATION - FIRESTOPPING

A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, and other items, requiring firestopping.

B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.

C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating in accordance with the product listing.

D. Non-Rated Surfaces:
1. Seal opening through non-fire rated wall, partition, floor, ceiling, and roof opening as follows:
   a. Install sleeve through opening and extending beyond minimum of 1 inch (25 mm) on both sides of building element.

b. Size sleeve allowing minimum of 1 inch (25 mm) void between sleeve and building element.
c. Install type of firestopping material recommended by manufacturer.

2. Install escutcheons where pipe, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where penetration occurs below finished ceiling.
3. Exterior wall openings below grade: Assemble rubber links of mechanical sealing device to size of piping and tighten in place, in accordance with manufacturer's instructions.
4. Interior partitions: Seal pipe penetrations at clean rooms, laboratories, medical spaces, computer rooms, telecommunication rooms, and data equipment rooms. Apply sealant to both sides of penetration to completely fill annular space between sleeve and pipe.

3.9 FIELD QUALITY CONTROL

A. Inspect installed firestopping for compliance with specifications and submitted schedule.

3.10 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.11 PROTECTION OF FINISHED WORK

A. Protect adjacent surfaces from damage by material installation.

3.12 SCHEDULES

A. Copper and Steel Pipe Hanger Spacing:

PIPE SIZE Inches (mm)	COPPER TUBING MAXIMUM HANGER SPACING Feet (m)	STEEL PIPE MAXIMUM HANGER SPACING Feet (m)	COPPER TUBING HANGER ROD DIAMETER Inches (mm)	STEEL PIPE HANGER ROD DIAMETER Inches (mm)
1/2 (12)	5 (1.5)	7 (2.1)	3/8 (9)	3/8 (9)
3/4 (20)	5 (1.5)	7 (2.1)	3/8 (9)	3/8 (9)
1 (25)	6 (1.8)	7 (2.1)	3/8 (9)	3/8 (9)
1-1/4 (32)	7 (2.1)	7 (2.1)	3/8 (9)	3/8 (9)
1-1/2 (38)	8 (2.4)	9 (2.7)	3/8 (9)	3/8 (9)
2 (50)	8 (2.4)	10 (3)	3/8 (9)	3/8 (9)
2-1/2 (65) (Note 2)	9 (2.7)	11 (3.4)	1/2 (13)	1/2 (13)
3 (75)	10 (3)	12 (3.7)	1/2 (13)	1/2 (13)
4 (100)	12 (3.7)	14 (4.3)	1/2 (13)	5/8 (15)

B. Note 1: Refer to manufacturer’s recommendations for grooved end piping systems.

C. Note 2: 20 feet maximum spacing, minimum of one hanger for each pipe section close to joint behind bell. Provide hanger at each change of direction and each branch connection. For pipe sizes 6 inches and smaller, subjected to loadings other than weight of pipe and contents, limit span to maximum spacing for water service steel pipe.

END OF SECTION

SECTION 23 07 00

HVAC INSULATION

PART 1 – GENERAL

1.1 SCOPE

A. Furnish all labor and materials necessary for the complete installation of thermal insulation on all hot and cold surfaces which require insulation for heat or cold conservation, comfort and safety of occupants, efficiency or ease or operation, or to prevent condensation or dripping. The insulation shall be complete and effective throughout the building.

B. Section Includes:
1. Ductwork insulation.
2. Piping insulation
3. Insulation accessories including vapor retarders and accessories.

C. All work shall be performed in a neat and professional manner by a Contractor or Subcontractor regularly engaged in the insulation field. The Mechanical Contractor shall be responsible for the bidding and execution of this work.

D. Any equipment or devices mentioned specifically in this section or any equipment or devices installed by the Mechanical Contractor that can have or cause temperatures low enough to cause condensation shall be adequately insulated and vapor sealed. If equipment, devices, or required insulation product is not specifically mentioned in this section or shown on drawings, the Contractor is required to request and obtain written instructions from the Engineer. If condensation should occur due to inadequate or missing insulation and/or vapor sealing, such damage, including damage to other affected property or building elements, shall be repaired by Contractor at no cost to the Owner.

1.2 GENERAL REQUIREMENTS

A. All insulation inside the building shall have composite (insulation, jacket or facing, and adhesive or cement used to adhere the jacket to the insulation) flame-spread rating of 25 or less and smoke-developed rating of 50 or less as tested under procedure ASTM E-84 and NFPA 255.
1. Insulation with a less stringent flame and smoke rating may be used only with the written permission of the Engineer.
2. Insulation products that meet the 25/50 rating requirement but that melt and drip flammable products, such as closed cell polyethylene products, are not acceptable.

B. Accessories such as adhesive, mastics, cements, and cloth for fittings shall be permanently fire and smoke resistant. Chemicals used for treating paper in jacket laminates shall be unaffected by water or humidity.

C. All adhesives, sealers, vapor barrier coatings, etc., shall be compatible with materials to which they are applied and shall not corrode, soften, or attack such materials in either the wet or dry state. Unless otherwise approved, all adhesives, sealers, coatings, mastics, etc., shall be water based.

D. Any insulation product found to be damaged or has become wet, whether installed or stored, shall be immediately removed and replaced with new product.

E. Thermal insulation shall be applied where needed, including but not limited to the following systems, as described herein:

1. Ductwork,
2. Chilled water piping
3. Heating water piping

PART 2 - PRODUCTS

2.1 DUCT WORK INSULATION

A. Air Conditioning Duct

1. Indoors: Insulation shall be foil faced 2" thick duct wrap, 1.0 lb/cu.ft. density, R-5 (installed) and a foil-skrim-kraft composite vapor barrier. Insulation shall be CertainTeed Standard Duct Insulation, Knauf Duct Wrap, Owens-Corning Fiberglas, Manville R-Series Microlite, or approved equivalent.
2. Outdoors: 2-1/2” thick, 3.0 lb/cu.ft., FSK vapor barrier, R-8 (installed). Provide a 0.016 thick aluminum with longitudinal z-joint similar to J-M "metal-lok". Secure with holding band or with screws 4 inches on center. Apply aluminum jacket continuously at all fittings.
3. Duct liner: Where indicated on the drawings, provide listed duct liner of the thickness and density as described on the drawings. Liner shall have anti-microbial facing and be glued and pinned on 18 inch centers.

2.2 PIPING

A. Chilled Water and Heating Water

1. Phenolic Foam insulation shall be used at scheduled PF thickness. Conductivity of 0.13 Btu in./hr/sf/deg F. at mean temperature of 75 degrees F and 0.17 at 150 degrees F. Jacket and sealing method same as above. Product shall be Kingspan Koolphen K, Resolco Insul-Phen, or approved equivalent.
2. Fittings, including but not limited to, short and long radius ells, tees, reducers, traps, valves, (except HVAC control valve) shall be insulated with factory made, one-piece, pre-molded high impact PVC covers with pre-cut insulation inserts. Acceptable products are Snap*Form by Certainteed, Knauf Fitting Cover System, Zeston 2000 by Manville, or approved equivalent.
3. Thickness

Piping Indoors

Service	Pipe Size	Min. Thickness PF
Chilled & Heating	1" & smaller	3/4inch
HVAC Water	1-1/4"& up	1inch

ART 3 - EXECUTION

3.1 DUCTWORK EXTERNAL INSULATION

A. Applications:

1. Insulate and vapor seal the following ductwork:
   a) air conditioning supply air ductwork,
   b) air conditioning supply air ductwork that is concealed or located in mechanical rooms,

c) outside air duct from exterior intake louvers to the air handler rooms,
d) air conditioning return and exhaust in non-plenum areas,
e) exposed ends of heating water coils at reheat type air terminal boxes to prevent end of coil from sweating,

2. The following ductwork does not require insulation:
a) exhaust air ductwork unless noted,
b) return air ductwork unless noted.

B. Air Conditioning Duct

1. Before applying duct wrap, sheetmetal duct shall be clean, dry and tightly sealed at all joints and seams.
2. Prepare overlap by removing approximately 2 inches of insulation from facing. Wrap insulation around duct with facing to the outside so the 2-inch flap completely overlaps facing and insulation at the other end of stretch out. Insulation shall be snugly butted.
3. Seams shall be stapled approximately 6 inches on center with outward clinching staples, then sealed with 4-inch wide pressure-sensitive tape matching the facing and designed for use with duct insulation. Tape shall be Hardcast Foil-Grip 1402 or approved equivalent.
4. Adjacent sections of duct wrap insulation shall be snugly butted with the circumferential 2-inch tape flap overlapping and secured as recommended for longitudinal seam. In lieu of pressure-sensitive tape, two coats of vapor retarder mastic reinforced with one layer of 4-inch wide open weave glass fabric may be used.
5. The insulation on the underside of duct work 24 inches or greater shall be secured with mechanical fasteners and speed clips spaced approximately 18 inches on center. The protruding ends of the fasteners should be cut off flush after the speed clips are installed, and then sealed with the same tape as specified above.
6. Wherever an externally insulated duct rests on a trapeze hanger, remove a strip of the external flexible wrap and install a high density rigid insulating board such as calcium silicate, foamglass, or approved equivalent between the duct and the hanger. Rigid insulation shall be at least twice the width of the hanger and shall be full width of the duct. Repair the insulation facing to provide a continuous vapor barrier.
7. Vapor barrier shall be complete and unbroken.

3.2 PIPING INSULATION INSTALLATION

A. General

1. All insulation shall be continuous through wall and ceiling openings and sleeves. Insulation on all cold surfaces, where vapor barrier jackets are used must be applied with a continuous unbroken vapor seal. Hangers, supports, anchors, etc., that are secured directly to cold surfaces must be adequately insulated and vapor sealed to prevent condensation. Where insulation is discontinued, special care shall be taken to taper the insulation to the pipe to allow for vapor barrier to completely seal off end of the insulation.
2. Insulation shall be applied after the surfaces have been thoroughly cleaned and dry and all piping has been tested and proven tight.
3. Circumferential self-sealing strips shall be applied to all butt joints to form a positive closure.

B. Supports

1. Metal shields shall be applied between hangers or supports and all types of pipe insulation. Shields shall be formed to fit the insulation and shall extend minimum up to the center line of the pipe. A full coat of insulating sealer shall be applied to the

surface of the insulation in contact with the metal shield. The metal shields shall conform to the following chart:

Pipe Size	Metal Ga.	Length of Shield
½" to 3"	20 ga.	12"
4" and up	16 ga.	16"

C. Fittings
1. On pipes carrying warm or hot liquids, the fitting covers may be secured with tacks or snaps with the butt joints taped at the pipe insulation. On pipes carrying cold liquids, the fitting covers shall receive a vapor barrier sealant similar to that in "Pipes" above.

D. Valves
1. Valves installed in lines carrying cold liquids, i.e. chilled HVAC water, chilled drinking water, or any other liquid of sufficiently low temperature as to cause condensation on the valve body surface, shall have the valve body insulated and vapor sealed up to the bottom of the operating device (handle, wheel, etc.).
2. Valves installed in lines carrying hot liquids, e.g. heating water, domestic hot water, etc., shall be similarly insulated but not vapor sealed.
3. All valves provided and installed by others that are installed in pipe to receive insulation are to have provisions to accommodate the insulation. If the Insulation Contractor encounters a valve that does not have adequate provision to accommodate the insulation without reduction in thickness and without compressing the insulation, then it is the responsibility of the Insulation Contractor not to try to insulate the valve body and to inform the General Contractor immediately so that corrective action may be initiated.
4. Exposed stop valves for plumbing fixtures are excluded.

E. Cold Condensate Drain Lines
1. Insulate and continuously vapor seal each cold condensate drain and drain line from the point where it attaches to a fan-coil unit, air handler, or other device until it discharges into a floor drain, hub drain, or other device. The insulation and vapor seal shall run continuously around any P-trap.

F. Elastomeric Insulation
1. Fittings including, but not limited to, ells, tees, caps, reducers, and valves, shall be adequately insulated and vapor sealed (where required) by using miter-cut tubing or the same insulation in a sheet form.
2. In all cases, all butt joints and seams are to be completely sealed with a contact adhesive manufactured and provided by the insulation manufacturer, such as Armstrong 520 Adhesive.
3. Insulation installed outdoors shall have applied two coats of weather-resistant protective finish, Armstrong Armaflex Finish or approved equivalent. The protective finish shall cover 100% of the insulation exposed to the outdoors.

END OF SECTION

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SECTION 23 30 00

AIR DISTRIBUTION

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. The work of this Section includes all labor, material, equipment and appurtenances indicated on the Drawings and herein specified for the installation of air distribution systems, including supply, exhaust, return, and outside air.

1.2 SUBMITTALS

A. Duct schedule: Provide a duct schedule or table indicating the following information, according to appropriate pressure class:
   1. each duct size group (as defined in SMACNA “HVAC Duct Construction Standards”)
   2. duct sheetmetal gauge,
   3. duct joint and reinforcement spacing,
   4. transverse joint construction,
   5. intermediate reinforcement construction, and
   6. hanger type and spacing.

B. Air Devices: Submit manufacturer’s standard technical product data including capacity ratings, throw, noise, drop, diffusion, terminal velocities, adjustability, construction details, finish and mounting details.

1.3 AS-BUILT DRAWINGS

A. Maintain field changes on a drawing set at the construction site. These drawings shall be available at the construction site to the Architect/Engineer upon request.

B. Upon completion of the project, update the shop drawing CAD files to reflect the field changes.

1.4 COORDINATION OF WORK

A. Prior to producing shop drawings and installation of work, coordinate work with other trades including structural, plumbing, fire protection and electrical.

B. Verify all ceiling heights and construction details.

C. Lack of coordination of work will not be considered grounds for additional cost or time requests.

PART 2 - PRODUCTS

2.1 FLEXIBLE CONNECTIONS (Duro Dyne 'Metal Fab' or approved equivalent)

A. Provide and install where shown on the drawings and at all connections between ductwork and equipment subject to vibration or movement.

B. Product shall be U.L. classified and shall meet the requirements of NFPA Standards

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90A and 90B having connection material of an approved flame retardant fabric or with sleeve joints with packing of approved material, each having a flame spread rating not in excess of 25 and a smoke developed rating not in excess of 50.

C. Flexible connectors shall be installed upstream of any supply side fittings and take-offs and downstream of any return side fittings. Connections shall have suitable metal collar frames at each end. Allow at least one-inch slack in each connection to assure no vibration is transmitted from fan to ductwork. Connections shall be not less than four-inches long nor longer than ten-inches.

2.2 AIR DEVICES

A. Grilles, Registers and Diffusers - Anemostat, Krueger, Metal*Aire, Price, Titus, Tuttle&Bailey or Approved Equivalent
   1. Provide as shown and scheduled on the Drawings or as otherwise approved, to deliver the indicated volume of air without objectionable noise or draft.
   2. Provide grilles, registers, and diffusers with two coats of factory applied baked on white primer, unless otherwise scheduled on the Drawings.

B. Manual Volume Dampers: (Ruskin MD35, Air Balance AC-116, or Approved Equivalent)
   1. Provide factory made, opposed blade manual volume dampers where shown on the Drawings or where otherwise required for balancing the air flows of the system. Construct damper blades of minimum 16-gauge galvanized steel securely fastened to square operating rod of adequate cross-section to prevent distortion, of length as required and of 12-inch maximum width.
   2. Where penetration of a duct is made for an operating rod, the non-operator end penetration shall be made with a gasketed and capped end bearing such as Duro Dyne SB-338. On the operator end, the penetration shall be made as follows:
      a. Concealed Duct - gasketed end bearing such as Duro Dyne No. SB-138; for duct above accessible ceiling, use a locking quadrant such as Duro Dyne No. K-4; for duct above a non-accessible ceiling, use a concealed regulator with chrome-plated cover such as Duro Dyne No.SB-380.
      b. Exposed Duct - gasketed, locking indicator type regulator with acorn nut cap such as Duro Dyne No. SR-380.
      c. For externally insulated ducts, provide appropriate devices to allow the operators to"stand-off" and be installed without compressing the insulation.

C. Access doors:
   1. Provide factory made access doors where shown and where otherwise necessary to provide access for removal of filters, for cleaning upstream face of coils and for maintaining dampers of any kind.
   2. Provide doors double walled with insulation between walls of same thickness as on ductwork.
   3. Provide door shall be minimal 12"x12" nominal size where duct size permits. Where duct size is smaller, provide door shall be as large as possible to fit into the duct.

2.3 FLEXIBLE DUCTWORK:

A. Construction: Provide ductwork conforming to UL 181, "Factory-Made Air Ducts and Connections," Class I, and NFPA 90A.

B. Insulation: R-6 minimum 2-inch-thick, 0.76 pound per cubic foot fiberglass.

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C. Sheath insulation with reinforced aluminized polyester vapor barrier having a permeance not exceeding 0.05 per ASTM E 96, "Standard Test Methods for Water Vapor Transmission of Materials," Procedure A.

D. Reinforcement: steel helical spring

E. Interior: non-porous, CPE or similar.

F. Pressure rating: 10” w.c. positive and 2” w.c. negative.

G. Taps: Provide boot or spin-in type as described on the drawings. Provide with damper with insulation standoff damper operator with quadrant lock.

2.4 SHEETMETAL DUCTWORK

A. General

1. Ductwork shall be made of single wall galvanized steel sheets. Ductwork shall be round or rectangular as shown on the Drawings. Straight pieces of round concealed ductwork shall be spiral lockseam or longitudinal snap-lock.
2. Ducts shall be constructed in accordance with the recommended construction for the appropriate pressure class insofar as gauges of metal to be used, bracing of joints and joint construction, fittings and fittings construction, etc., as established in HVAC DUCT CONSTRUCTION STANDARDS, Latest Edition, published by the Sheet Metal and Air Conditioning Contractors National Association, Inc., (SMACNA).
   a. Ductwork shall be constructed to the following minimum pressure classes:
      (1) Fan-coil, supply and return and downstream of VAV’s
         (a) below 2,000 cfm ± 1"
         (b) above 2,000 cfm ± 2"
      (2) Air Handlers and RTUs
         (a) Up to 3HP
            (i) supply +2"
            (ii) return -1"
         (b) 3HP & up
            (i) supply +3"
            (ii) return -2"
      (3) Exhaust - 1"
3. Sealing
   a. Snap-lock duct and rectangular duct: seal all ducts to SMACNA Class 'A' rating, that is, "All transverse joints, longitudinal seams, and duct wall penetrations" shall be sealed.
   b. Spiral lockseam: same sealing as snap-lock except sealing of longitudinal seams is not required.
   c. A gasketed mechanical joint system such as Ductmate does not require sealing.
   d. Sealant shall be water-based product; solvent based products are expressly prohibited. Product shall be recommended by manufacturer for HVAC duct application and it shall cure to a flexible film with a strong adhesive bond to common duct materials. Product shall be rated by manufacturer for operating temperature limits from zero degrees F to 200 degrees F. Product shall have been tested per ASTM E84 procedures and shall have a maximum flame spread rating of 25, a maximum fuel contributed rating of 5, and a maximum smoke developed rating of 20. Product shall be Hardcast "Iron Grip" IG-601 or "Flex-Grip" FG-550, Rectorseal "Air-Lock", Foster 32-50, United McGill Duct Sealer, or approved equivalent.

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PART 3 - EXECUTION

3.1 GENERAL

A. During construction, all air-moving equipment and ducts shall be protected from entrance of water, dust, trash, vermin, etc., per Section 15010. Fans of all types not yet connected to ductwork shall have inlets and outlets covered with plastic sheet secured temporarily with tape, wire, etc. Such covers shall be maintained throughout the construction phase until the ductwork is connected.

B. Ducts shall be routed in conjunction with pipes, electrical, conduits, lights, ceiling hangers, etc., so as to avoid interference insofar as possible.

3.2 CLEANING

A. Ducts, plenums, and casings shall be thoroughly cleaned of all debris and blown free of all small particles of rubbish and dust before installing outlet faces. Equipment shall be wiped clean, with all traces of oil, dust, dirt or paint spots removed. Temporary filters shall be provided for all fans that are operated during construction. New filters shall be installed after all construction dirt has been removed. Bearings shall be properly lubricated with oil or grease as recommended by the manufacturer. Belts shall be tightened to produce tension. All control valves and other miscellaneous equipment requiring adjustment shall be adjusted to settings indicated or as directed. Fans shall be adjusted to the speed indicated by the manufacturer to meet specified conditions.

3.3 DUCTWORK, GENERAL

A. Support
   1. Support each fitting that effects a change in direction, either vertical or horizontal, at the fitting.
   2. Support each fitting that has a branch intersection at the fitting.
   3. Support ductwork at or near connections to equipment.
   4. Support each duct independently. Do not support one duct from another except as allowed by SMACNA.
   5. Do not use wire as a hanger, even to support another hanging device such as a trapeze, regardless of acceptability by other authorities. Only straps, threaded rods, and channel may be used as hangers.

B. Install ductwork without twisting.

C. Install ductwork shown on the Drawings to be horizontal as straight and level as possible; exception: duct with slope designed to provide drainage toward a device, such as grease exhaust duct or dishwasher exhaust duct.

D. Install ductwork shown on the Drawings to be vertical as vertical as possible in both vertical directions. Vertical ductwork extending more than one floor in height shall be supported at every floor or every 12 feet, whichever is less.

E. Install ductwork so that no duct or hanger is touching other duct or building elements such as framing, structure (except for supports), piping, conduit, etc.

3.4 SHEETMETAL DUCTWORK

A. In supporting sheetmetal ductwork, SMACNA, in HVAC Duct Construction Standards, Table 4-1 lists several combinations of hanger types and hanger spacing that are

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equivalent for various duct sizes. Contractor shall conform to one of the listed combinations (except for prohibited wire hangers).

B. Duct sealing material shall not be used to fill gaps caused either by careless or unprofessional work during fabrication or erection or by damage after erection. Surfaces on which sealant is to be applied shall be cleaned and dry before application. If any oil or grease is present, surface shall additionally have a degreaser applied.

C. Install duct liner where shown on drawings. Duct liner is used for acoustic attenuation only and is not to be applied in general.

D. Connections
1. Duct-to-duct connections or "splicing" is prohibited.
2. At sheetmetal taps and at air devices, insulation and outer jacket shall be slit and carefully peeled back approximately 4-inches.
3. Inner duct shall be secured tightly to the collar, without deformation of the collar, using a stainless-steel draw band system.
4. Insulation shall be pulled back over duct and collar and snugly butted against the sheetmetal or air device. Insulation shall be snugly secured with another draw band without significant compression of the insulation.
5. A mastic type sealer shall be applied to the longitudinal cut in the duct outer jacket and all along the circumference of the butt joint between the flex duct and the sheetmetal duct. In addition to sealing the joints, the mastic material shall form a flexible, effective vapor seal.

3.5 FLEXIBLE DUCTWORK

A. Maximum length from take-off to air outlet shall be 8 feet.

B. Maximum one 90-degree bend in any length.

C. Provide continuous length with no intermediate joints.

D. Connect each end with stainless steel screw operated drawbands.

E. Support clear of the ceiling tile, light fixtures and air terminal

F. Support for maximum sag of 1/2-inch per foot.

G. Provide duct with UL labels visible every 10 feet indicating conformance to UL 181.

END OF SECTION

SECTION 26 01 00

GENERAL REQUIREMENTS FOR ELECTRICAL WORK

PART 1 - GENERAL

1.1 SCOPE

A. This project involves construction of the project as titled above with associated site work as shown on the plans and described herein.

1.2 DRAWINGS

A. Contract drawings are diagrammatic only and do not give fully dimensioned locations of various elements. Contractor shall determine exact locations from field measurements. Refer also to all architectural, structural, etc., drawings. The lack of specific detail of all offsets, transitions, etc., shall not relieve the Contractor of responsibility to provide such necessary elements to coordinate his work with building construction and with other trades.

1.3 SUBSTITUTION

A. All bids shall be based only on the equipment and materials as scheduled on the drawings and/or as specified, or on equivalent equipment and materials from a pre-approved alternative manufacturer. No bids may be based on a substitute or other alternative without specific written prior approval from the Engineer. Any Bidder who assumes equivalence of products and who bases his/her bid on that assumption, does so at their own risk.

B. A listing of approved alternative manufacturers does not mean that all products of a particular alternative manufacturer are acceptable alternatives to the scheduled items; it merely means that for bidding prior approval is not required. All fixtures and devices must still be submitted according to the prescribed procedures. In addition, some items that have an important visual affect, e.g. electric water coolers, may be required to receive Engineer's or Owner's approval also.

C. Substitute equipment, components, devices and systems shall be fully compatible with the design intent and complete with all required costs included in the bid amount. This includes all modifications to support, structure, pipe and electrical sizing and components needed and all other items necessary for the substitute to perform with no additional cost to the project.

1.4 INTENT

A. All equipment, materials and labor that may be necessary to complete work in accordance with the intent of these plans and specifications shall be furnished by the Contractor without additional cost.

B. All systems represented in the documents shall, unless specifically noted to the contrary, be provided and installed complete with all necessary components to form a complete and functioning system. Submission of bids will be considered confirmation that complete and functional systems have been included in the bids.

C. If any discrepancies or confusion is perceived in the documents, the Contractor shall call such to the attention of the Engineer for clarification of the documents prior to bidding or construction. If any inconsistencies or contradictions within the construction documents are discovered after the construction contracts are awarded, the Engineer shall determine the intent and correct interpretation of the construction documents.

D. Contractor shall supervise and direct the work competently and efficiently and in accordance with the drawings and specifications. Contractor shall be responsible for using construction means, methods, techniques, sequences, and procedures as are compatible with the project's requirements and will result in a project completed in accordance with the requirements of the drawings and specifications.

1.5 CODES, PERMITS AND FEES

A. Contractor shall comply with all local, state and national codes and shall pay for all applicable costs, fees and permits.

1.6 CONNECTION TO UTILITIES

A. Coordinate connections to utilities directly with utility providers.

B. Verify location, size, elevation, pressure, and any other pertinent data of existing utilities. Additional costs incurred due to a failure to verify such data and to coordinate associated work with respective utility providers shall be borne by Contractor.

C. All costs associated with providing utilities including, but not limited to, connection fees, boring under roads, etc., shall be included in the Contractor's bid price whether such costs are incurred by Contractor or charged by a utility company.

D. Submission of a bid by a Contractor shall be considered an acknowledgment by the Contractor of his compliance with this section.

E. Contractor shall connect water and waste piping and gas service to existing services in accordance with utility company regulations and shall pay all applicable fees and costs. NOTE: Excavate by hand and with caution to locate all utilities prior to machine excavation. Should any service be interrupted, Contractor shall repair it immediately and at no cost to the Owner.

1.7 CONNECTION OF EQUIPMENT PROVIDED BY OTHERS

A. Provide material and labor to connect equipment, components and systems provided by the Owner or other trades.

B. Particular attention is required for food service and kitchen area equipment. Review Construction Documents describing work in those areas. Coordinate installation requirements and timing with system installers and providers.

1.8 VIBRATION AND NOISE

A. Each of the various pieces of equipment shall operate without objectionable vibration or noise. All rotating equipment shall be statically and dynamically balanced and shall be mounted, supported, and fastened so that vibration shall not exceed levels specified for the equipment item. The specific type of vibration isolation to be installed shall be submitted to the Engineer for his approval.

B. If, in the opinion of the Engineer, objectionable vibration or noise or transmission thereof to the building occurs, the Contractor shall execute remedial measures as may be necessary to eliminate such unsatisfactory operating conditions, and the work and material thereby required shall be furnished and performed at the Contractor's expense.

1.9 GUARANTEE

A. Each Contractor shall guarantee all labor and materials furnished by him for a period of one year unless otherwise noted. Guarantee period shall extend from the time of final written

acceptance of the installation or upon usage by a written directive from the Owner, whichever occurs first. The guarantee shall cover the repair or replacement, without additional cost to the Owner, of any defective material or faulty workmanship.

1.10 SERVICE

A. All necessary service of each system, such as adjustment of controls, air distribution, and water balancing valves, mechanical repair of equipment, and other work requiring specialized training, shall be furnished by the Contractor, at no cost to the Owner, for a period of one year, concurrent with the warranty period specified above.

1.11 SAFETY

A. General
   1. Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work, and Contractor shall comply with all laws governing safety, specifically the "Occupational Safety and Health Standards" and the "Safety and Health Regulations for Construction", state and federal.

B. Hazardous Chemicals
   1. According to OSHA, a hazardous chemical is any chemical which is a physical hazard or a health hazard. This may include items such as paints, solvents, adhesives, sealants, cleaners, etc. If a contractor produces, uses, or stores hazardous chemicals at the workplace, then contractor shall develop, implement, and maintain a hazard communication program in compliance with latest OSHA requirements. In projects with multiple tenants in which the building is partially occupied during the project, contractor shall inform the building manager or owner, according to OSHA guidelines, of any hazardous chemicals being produced, stored, or used in the building so that other tenants may be notified. Contractor shall employ required methods of training, information, handling, ventilation, labeling, storing, disposal, and removal of hazardous chemicals.

1.12 COORDINATION

A. Each Contractor's bid shall include the necessary detail and interconnection work to coordinate his work with the work of other trades. Failure on the part of the Contractor to coordinate with all other trades resulting in interferences shall be sufficient reason to require the Contractor to replace or rebuild the work involved at no extra charge.

1.13 STORAGE OF MATERIALS

A. Each Contractor shall provide temporary storage facilities suitable for equipment stored at the job site. Storage facilities shall be rain-proof and lockable as required. Materials or equipment stored on site but not in a lockable, rain-proof storage facility shall be stored above ground or above slab. Contractor shall take necessary precautions to prevent entry of and/or damage from dirt, trash, water, or vermin. Equipment not properly stored and protected shall be, at the discretion of the Engineer, replaced at no cost to Owner. Roofs are not acceptable storage areas unless specifically allowed in writing by the Engineer.

PART 2 - PRODUCTS

2.1 SUBMITTALS

A. Provide submittal to the A/E within 45 days of commencement of the Contractor’s agreement with the Owner.

B. In addition, submit specific information on equipment, products, and principal materials specified. Indicate and provide names of manufacturers, catalog and model numbers, cut sheets, and such other supplementary information as necessary for evaluation. Include all items mentioned by model number and/or manufacturer's name in the specifications or on the drawings, including but not limited to the following:
   1. Electrical - Fixtures, panels, protective devices, wiring devices, switches, motor starters, transformers, conduit, and any other equipment or principal materials.

C. Prepare and submit large scale shop drawings (minimum ¼"= 1'-0") of the central mechanical room, central electrical room and each individual electrical room. These drawings shall show to scale the actual sizes of each piece of selected mechanical, plumbing and electrical equipment along with the required clearances for maintenance or removal/replacement. Provide bottom of pipe, duct, equipment or other such vertical obstructions. Provide sections where necessary and as requested by the Engineer for clarity to describe equipment heights, piping elevations and other such clearance issues. Drawings shall be prepared on maximum 30" X 42" sheets using AutoCad® 2004 format. Submit 6 copies of the drawing sheets and a compact disk with the drawing files.

D. Requirements for submittal
   1. Each submittal shall:
      a. bear a stamp or specific written indication that Contractor has reviewed and approved all submittals prior to submission to Engineer,
      b. have all information deleted by Contractor that pertains to the means and methods of construction or to the fabrication, assembly, installation, or erection process (approval by Engineer shall not extend to these areas unless specifically noted by Engineer),
      c. be clearly marked as to which specific piece of equipment is being submitted, by use of a permanent marker, stamp, etc., so as to distinguish it from other pieces of equipment that may occur on the same page,
      d. be clearly marked as to which available options are being submitted that are associated with a piece of equipment, and
      e. be complete with respect to quantities, dimensions, specific performance, materials, and similar data to enable Engineer to review the proposed equipment.
   2. Omission by Contractor of any of the above requirements for submittals will subject submittal to automatic rejection without review.
   3. Any submittals received by Engineer that were not requested shall be returned without review of any kind.

E. Substitutions
   1. In Addition, no substitution is allowable without Engineer's written approval ten days prior to bid due date (unless otherwise allowed by Engineer) unless the manufacturer is listed on the Drawings or in the specifications as being a pre-approved alternative manufacturer. Any submittal received without such written approval or prior approval is subject to unqualified rejection.
   2. Contractor's responsibility shall be to verify that submitted substitute equipment will fit in the space available. The Contractor's submittal for acceptance of the substitute shall include a written statement of whether or not such acceptance would require any subsequent or associated changes to the drawings or specifications. Any such changes shall be described in writing, briefly but completely.
   3. The Contractor shall be responsible for the cost of any such modifications due to substitution of materials or equipment for that which was specified or scheduled. The cost shall be complete, that is, it shall include the costs affect on any and all other trades.
   4. The Engineer may request shop drawings of mechanical rooms or systems of the substituted equipment.

F. Installation Instructions
   1. For certain products or systems as identified in subsequent specification sections, the Contractor shall, as required, provide copies of manufacturer's installation instructions

with the submittal. When required as such, the installation instructions are considered part of the submittal and their omission may result in automatic rejection of the submittal. Where more than one identical device is scheduled, only one set of installation instructions needs to be submitted, e.g. if seven five-ton split system air conditioners are scheduled, only one five-ton unit installation instructions needs to be submitted. Similarly, if one set of installation instructions is identified by the manufacturer and on the instructions to be applicable to more than one type or size of devices, e.g. if one set of air conditioner instructions is good for three, four, and five-ton units, then only one instruction set is required for those devices.

2.2 MATERIALS

A. All materials shall be new and of the quality specified. Materials shall be free from defects. Where manufacturers' names are mentioned in these specifications or on the plans, it has been done in order to establish a standard of quality and construction.

B. Contractor will be responsible for transportation of his materials to and on the job and will be responsible for the storage and protection of his materials and work until the final acceptance of the job. At the end of each work day, each Contractor is responsible for covering or protecting his work or materials that may be susceptible to damage even if such damage is the result of unforeseen causes, e.g. an overnight thunderstorm. Failure to do so will be sufficient cause for rejection of any item in question, and any such item shall be replaced at Contractor's expense.

C. Contractor shall verify that all pieces of equipment will fit through available openings in building and that all equipment can be installed without modification of building structure.

2.3 LABELING

A. Each device for which an independent testing authority has established a standard shall have affixed a label indicating its compliance and listing. Such independent testing authorities shall include, but not be limited to, the following:

A.D.C.	Air Diffusion Council
A.G.A.	American Gas Association
A.M.C.A.	Air Movement and Control Association
A.N.S.I.	American National Standards Institute
A.R.I.	Air-Conditioning and Refrigeration Institute
A.S.H.R.A.E.	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
A.S.M.E.	American Society of Mechanical Engineers
A.S.P.E.	American Society of Plumbing Engineers
A.S.S.E.	American Society of Sanitary Engineers
A.S.T.M.	American Society for Testing and Materials
A.W.W.A.	American Water Works Association
C.T.I.	Cooling Tower Institute
F.M.	Factory Mutual
I.A.P.M.O.	International Association of Plumbing and Mechanical Officials
I.C.B.O.	International Conference of Building Officials
M.S.S.	Manufacturers Standardization Society of the Valve and Fittings Industry
N.A.P.H.C.C.	National Association of Plumbing, Heating, Cooling Contractors
N.B.S.	National Bureau of Standards
N.E.B.B.	National Environmental Balancing Bureau
N.E.C.	National Electric Code
N.E.M.A.	National Electrical Manufacturers Association
N.F.P.A.	National Fire Protection Association
N.R.C.A.	National Roofing Contractors Association

N.S.F.	National Sanitation Foundation
P.D.I.	Plumbing and Drainage Institute
S.B.C.C.I.	Southern Building Code Congress International
S.M.A.C.N.A.	Sheet Metal and Air Conditioning Contractors' National Association
T.I.M.A.	Thermal Insulation Manufacturers Association
U.L.	Underwriters Laboratory

2.4 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Contractor shall prepare and provide four copies of operating and maintenance manuals. Contractor shall deliver these four bound sets to the Engineer for approval. Each manual shall be in a ring binder and shall be indexed with dividers for each section. Delivery of required documents is a condition of final acceptance.

B. Each manual shall contain at least the following:
   1. Certificates of acceptance from inspecting authorities,
   2. Waiver of all liens,
   3. For each piece of equipment:
      a. operating and safety instructions, service manuals, and parts lists applicable to each item of equipment furnished (Contractor shall clearly distinguish in the manual between information that pertains to the particular equipment and information which does not.),
      b. nameplate data and design parameters for equipment,
      c. name, phone number, and address of vendor, manufacturer's representative, and warrantee provider,
      d. start-up report, if applicable,
   4. copies of all shop drawings and as-built drawings (as-built drawings shall be on a reproducible vellum as produced by a Xerox or photographic process),
   5. copies of all approved submittals,
   6. warranties with start dates and end dates for each piece of equipment and/or for each system (warranties shall begin on date of substantial completion and acceptance by Owner),
   7. names, phone numbers and addresses of all subcontractors, vendors, manufacturer's representatives, and warrantee providers,
   8. certification letter from each Contractor that each system furnished and installed by that Contractor and/or Subcontractors is started-up, balanced, adjusted and checked for proper operation in accordance with the intent of the contract documents, and
   9. acceptance letter from each Contractor with blanks for date of acceptance and date of expiration of warranties and guarantees.

2.5 TAGGING

A. Equipment to be Tagged: Each major piece of equipment discussed in the specifications or scheduled on the drawings shall have affixed a tag showing the name or function of that piece. The list of equipment to receive tags shall include, but not be limited to, the following:
   1. panelboards, switchgear, transformers, starters, safety switches, contactors, etc., with designation from drawing and indicating function or device served (e.g. - Rm 101 lighting contactor, CHP-1, etc.),
   2. motor starters and contactors, indicating which devices are being controlled,
   3. any other major piece of equipment.
   4. Items which have no unique name, such as light fixtures need not have tags.

B. Tags
   1. Material - Tags shall be engraved plastic, brass, or anodized aluminum. Surface mounted tags shall have pressure sensitive adhesive backing. Tags for outdoor use shall be mounted with brass screws.

2. Lettering - Characters shall be minimum 1/4" in height and shall be of a contrasting color to the tag.
3. Installation - Surface mounted tags with adhesive backs shall be applied only to clean, dry surfaces. Adhesive tags shall not be applied to surfaces that are subject to condensation or excessive heat.

C. Alternatives
1. For larger equipment such as large air handlers, switchgear, etc., the use of manufactured stencils (2-inch characters) and spray paint (in contrasting color to equipment) is an acceptable alternative.
2. Individual adhesive letters are not acceptable.
3. Other alternatives are acceptable only by submitting samples or manufacturer's literature to Engineer and receiving written permission.

2.6 MOTORS AND MOTOR STARTERS

A. Motors
1. Unless scheduled otherwise, each electric motor shall be high efficiency type.
2. Each single-phase motor larger than 1/10 (one-tenth) horsepower and each single phase motor that drives a pump or compressor shall be a permanent split capacitor type. Each polyphase squirrel-cage induction motor shall be an energy efficient type as defined in NEMA document No. MG1-1987.

B. Motor Connections
1. Motor starters, unless scheduled otherwise or packaged with the equipment shall be provided and installed by the Electrical Contractor. The Mechanical Contractor shall provide to the Electrical Contractor a complete list of motors requiring starters or other connections, including power and control, and shall include the following information for each such motor:
a. a tag reference to the piece of equipment for which the motor is needed,
b. the voltage and number of phases,
c. the motor requirements in terms of horsepower, running load amps, full load amps, etc.,
d. any other pertinent information required or requested by the Electrical Contractor.
2. The Electrical Contractor shall receive and review the above information and advise the Mechanical Contractor and Engineer of any discrepancies or required modifications. The Electrical Contractor shall provide and install the correct starter, conductors, and other devices per the electrical drawings, specifications, and National Electrical Code.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. The workmanship shall, in all respects, be of the highest grade, and all construction shall be done according to the best practices of the trade. Piping, ducting and conduit shall be concealed unless otherwise noted, and installed square to the building lines. Any work not meeting this requirement shall be replaced or rebuilt without extra expense to the Owner.

3.2 INTERIM CLEANING

A. The Contractor shall maintain the work area in a clean condition during the course of the work. All debris, scrap and surplus material shall be removed from the work area on a periodic basis with a minimum of at least once per day.

B. All stored material shall be support above floor level and be protected from becoming damaged or dirty.

C. All installed material shall have open ends closed and protected from entrance of foreign material during construction.

D. Prior to enclosing an area such as a ceiling or chase wall, the installed material and surrounding area shall be thoroughly cleaned. After removing loose material, the area shall be vacuum cleaned or blown out with a portable blower to remove dust from surfaces.

3.3 CUTTING, PATCHING, AND PENETRATIONS

A. No joists, beams, girders, columns, slabs, or other structural elements shall be cut, drilled, or altered in any way by the Contractor without first obtaining written permission and instructions from the Engineer.

B. Where cutting any non-structural element(s) of walls, floors or ceilings is necessary to permit the installation of any work under this contract, or to repair any defects that may appear up to the expiration of the guarantee, such cutting shall be done by Contractor with as little damage as reasonably possible to the element being cut, to adjacent elements, or to the work of other trades.

C. After the necessary work has been completed, the damage shall be repaired by the Contractor, who shall pay all costs of such cutting and patching. All patching or sealing of cuts, penetrations, etc., including final appearance of same, shall be done to the approval of the Engineer. In absence of specific finish instructions, provide finish to match adjacent surfaces.

D. Where a penetration or cutting of a ceiling, wall, or other building membrane is required or made, each such penetration or cut shall be made neatly with a cutting tool such as a saw, sharp knife, etc., and not with an impact tool such as a hammer, screwdriver, wrench, crowbar, etc. Each such penetration or cut shall be no larger than reasonably necessary, and penetrations in occupied or publicly accessible spaces shall have a chrome-plated escutcheon installed large enough to cover the entire opening.

E. Where a penetration is made in a fire-rated building assembly (wall, floor, ceiling, floor-ceiling, roof-ceiling, etc.) or in a membrane of a fire-rated assembly, and no specific firestopping assembly is shown on Drawings, Contractor shall provide and install a firestopping assembly or product as listed in the latest edition of U.L. Fire Resistance Directory. Firestopping assembly or product shall be appropriate for the size and material of the penetrating element, for the penetrated building element, for the presence or lack of insulation, for the size of the annulus around the penetrating element, etc. Contractor shall include firestopping assembly or product in submittals. Contractor shall review and verify fire-ratings of building assemblies as shown on Architectural plans. Lack of knowledge of a fire-rating of an building assembly shall not relieve Contractor of requirement to install firestopping.

3.4 EQUIPMENT AND PIPING SUPPORTS

A. All supporting systems for piping, equipment, and materials supported by the building structure shall be submitted to the Engineer for approval prior to purchase and installation.

B. Provide 3-1/2” (minimum, or as called out elsewhere) high concrete house keeping pads for all floor mounted equipment and piping. Pad shall have chamfered edges and be painted to match the floor.

3.5 ACCESSIBILITY

A. Access Panels

1. Access panels shall be provided wherever necessary for possible future replacement, adjustment, or maintenance of operating devices such as machinery, valves, dampers, switches, relays, etc., or to other critical non-operating devices such as pull boxes, inspection parts, gauges, etc. Such access panels shall be provided and installed by Contractor, whether or not shown on drawings, and shall be brought to the attention of Engineer for his approval of type, color, etc. Where access is provided in rated members, the access panels shall be of a type that maintains the integrity of the member penetrated.

B. Access to Equipment
1. All pipes, tubing, conduit, etc., including, but not limited to, chilled water and heating water piping, domestic cold water and hot water piping, fire sprinkler piping, waste and vent piping, drain piping of any type, electrical conduit, wiring not in conduit, and pneumatic control tubing shall be installed in such a way so as not to prevent and/or not to make unreasonably difficult the removal, operation, use, or maintenance of equipment, access panels or doors, pathways (especially in attics or crawl spaces), observation ports, measurement or balancing devices, junction boxes, etc.. If access for these purposes is prevented or made unreasonably difficult in the opinion of the Engineer, then the Contractor shall make modifications or repairs at no cost to anyone except the Contractor. Such modifications or repairs shall be considered neither complete nor adequate until the Engineer are satisfied that access for the above purposes is achieved.

3.6 FIELD REPORTS

A. The Contractor shall be required to respond all deficiency items noted in Field, Site Visit, Punch List and other such reports provided by the A/E. The response shall address each deficiency item in the same order as the report with annotations as to what was done to remedy the deficiency, who performed the work and when it was done.

3.7 OPERATING TESTS

A. General
1. After all mechanical and electrical systems have been completed and put into operation, Contractor shall subject each system to an operating test under design conditions to ensure proper sequence and operation throughout the range of operation. All associated costs of such tests, including labor, fuel, apparatuses, piping, etc., shall be borne by the Contractor.
2. Contractor shall make adjustments as required to ensure proper functioning of all systems. Special tests on individual systems are specified under individual sections. The Contractor shall return to the project during the first year and in the opposite season from which the system was initially operated and shall check the proper operation of the mechanical and electrical systems. Contractor shall perform any adjustments or corrective procedures required for the proper operation of all systems.

B. Notification
1. Contractor shall give the Engineer seven day’s prior notification of any test so that the Engineer will have time to be present if he so desires.

C. Reports
1. After each test is performed, the Contractor who performed the test shall prepare and issue a report to include the following information:

a. Project name and location, date of the report,
b. Contractor's name, address, and telephone number; if the Contractor performing the test is a Subcontractor, indicate also for whom the test is being performed, their name, address, telephone number, and a contact person's name,
c. the date, or range of dates, of the test,

d. the name of the Contractor's employee who was responsible for performing or for overseeing the performing of the test,
e. a brief description of the system being tested,
f. a brief description of the testing procedure,
g. a summary of the test result(s),
h. a brief assertion that the system was tested as stated and that the system complied with the requirements of the contract documents or those of the Authority Having Jurisdiction, whichever is the most stringent, and
i. a hand-written date and signature of someone who has authority or responsibility from the company that performed test(s), and a hand-written brief note stating that the above information is true and accurate.

2. If the tested system is tested in parts, then one report may be made after the last part is tested.
3. The report shall be issued to the Engineer within five working days after the test is completed.
4. Such reports shall be required of all mechanical or electrical systems which require tests for pressure, water tightness, flow, resistance, or conductivity.

D. Services of a Manufacturer's Representative
1. Reports: For all major systems or equipment required by subsequent specifications sections to have tests or inspections by a manufacturer's representative, the manufacturer's representative shall prepare a written report to be sent to the Engineer for subsequent distribution to the Engineer, Owner, General Contractor, and to whomever else the Engineer deems necessary. The report shall include at least the following:
a. date of the visit, name and title of the representative, name and location of the project,
b. name and title of any observers,
c. a brief description of the equipment being inspected and/or tested,
d. a brief discussion of the quality of the installation including any important items (in the manufacturer's experience) that were done correctly, as well as any items that were done incorrectly or not to recommendations,
e. a list of tests and/or inspections performed and the results of same, and
f. a brief statement of whether the installation conforms to manufacturer's recommendations and/or requirements, and if not what is required to bring the installation into conformance.
2. Deficiencies and Defects
a. Contractor shall be responsible for providing all labor and materials, at no cost to anyone except Contractor, to correct any deficiencies or defects reported by manufacturer's representative.
b. If, in the opinion of the manufacturer's representative, the deficiencies and defects are sufficiently serious, then Contractor shall arrange for, and bear all costs of, another inspection by manufacturer's representative after corrective measures have been taken.
3. The above process shall continue until the manufacturer's representative approves the installation.

3.8 INSTRUCTIONS FOR OWNER

A. Contractor shall instruct the Owner's operating personnel in the operation and maintenance of all mechanical equipment. Contractor shall furnish any special servicing tools required for maintenance.

3.9 DEMONSTRATION

A. Contractor shall conduct a demonstration of the installation upon completion of the work. Prior to this, all work shall have been completed, tested, balanced, and placed in operation.

Qualified persons must be present at demonstration to operate all systems and prove the performance of the equipment. The schedule for this demonstration shall be coordinated with the Engineer.

3.10 CLEANUP

A. At substantial completion of the project, thoroughly clean all equipment and systems of all dirt, debris and foreign material.

B. This shall include cleaning coils and fans inside of air handlers, cleaning the interior of duct systems and wiping down the interior of all electrical equipment.

C. Remove all unused temporary wiring or construction lighting and power and all unused material from above the ceilings and from hidden recesses.

END OF SECTION

SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes building wire and cable; nonmetallic-sheathed cable; direct burial cable; service entrance cable; armored cable; metal clad cable; and wiring connectors and connections.

B. Related Sections:
1. Section 26 05 53 - Identification for Electrical Systems: Product requirements for wire identification.

1.2 REFERENCES

A. International Electrical Testing Association:
1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SYSTEM DESCRIPTION

A. Product Requirements: Provide products as follows:
1. Solid copper conductor for feeders and branch circuits 12 AWG and smaller.
2. Stranded copper conductors for control circuits.
3. Stranded copper conductors larger than 12 AWG.
4. Conductor not smaller than 12 AWG for power and lighting circuits.
5. Conductor not smaller than 16 AWG for control circuits.
6. 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet.
7. 10 AWG conductors for 20 ampere, 277 volt branch circuits longer than 200 feet.

B. Wiring Methods: Provide the following wiring methods:
1. Concealed Dry Interior Locations: Use only building wire THHN/THWN insulation, in raceway.
2. Concealed Dry Interior Locations: For lighting whips and drops to single outlet or switch and within wall cavities THHN/THWN insulation with grounding strip for exterior of metal clad cable and green insulated ground wire complying with NEC requirements may be used at contractor’s option
3. Exposed Dry Interior Locations: Use only building wire THHN/THWN insulation, in raceway.
4. Wet or Damp Interior Locations: Use only building wire THHN/THWN insulation, in raceway.
5. Exterior Locations: Use only building wire THHN/THWN insulation, in raceway.
6. Underground Locations: Use only building wire THHN/THWN insulation, in raceway.

1.4 SUBMITTALS

A. Section 26 01 00 - Submittal Procedures: Requirements for submittals.

1.5 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of components and circuits.

1.6 FIELD MEASUREMENTS

A. Verify field measurements are as indicated on Drawings.

1.7 COORDINATION

A. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.

B. Wire, conduit and cable routing indicated is approximate unless dimensioned. Include wire and cable lengths within 10 ft of length shown.

PART 2 - PRODUCTS

2.1 BUILDING WIRE

A. Product Description: Single conductor insulated wire.

B. Conductor: Copper.

C. Insulation: 600 volt rating; thermoplastic material rated 90 degrees C.

2.2 METAL CLAD CABLE

A. Conductor: Copper.

B. Insulation Voltage Rating: 600 volts.

C. Insulation Temperature Rating: 90 degrees C.

D. Insulation Material: Thermoplastic.

E. Insulated green grounding conductor.

F. Armor Design: Interlocked metal tape.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify interior of building has been protected from weather.

B. Verify mechanical work likely to damage wire and cable has been completed.

C. Verify raceway installation is complete and supported.

3.2 PREPARATION

A. Completely and thoroughly swab raceway before installing wire.

3.3 INSTALLATION

A. Route wire and cable to meet Project conditions.

B. Neatly train and lace wiring inside boxes, equipment, and panelboards.

C. Identify and color code wire and cable under provisions of Section 26 05 53. Identify each conductor with its circuit number or other designation indicated.

D. Special Techniques--Building Wire in Raceway:
1. Pull conductors into raceway at same time.
2. Install building wire 4 AWG and larger with pulling equipment.

E. Special Techniques - Cable:
1. Protect exposed cable from damage.
2. Support cables above accessible ceiling, using spring metal clips to support cables from structure or ceiling suspension system. Do not rest cable on ceiling panels.
3. Use suitable cable fittings and connectors.

F. Special Techniques - Wiring Connections:
1. Clean conductor surfaces before installing lugs and connectors.
2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
5. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

G. Install solid conductor for feeders and branch circuits 12 AWG and smaller.

H. Install stranded conductors for branch circuits 10 AWG and larger. However, when stranded conductors are used in lieu of solid, then install crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under screws.

3.4 WIRE COLOR

A. General
1. For wire sizes 10 AWG and smaller, install wire colors in accordance with the following – unless governed by other local code amendments:
   a. Black and red for single phase circuits at 120/240 volts.
   b. Black, red and blue for circuits at 120/208 volts single or three phase.
   c. Purple, brown, and yellow for circuits at 277/480 volts single or three phase.
2. For wire sizes 8 AWG and larger, identify wire with colored tape at terminals, splices and boxes. Colors are as follows:

a. Black and red for single phase circuits at 120/240 volts.
b. Black, red, and blue for circuits at 120/208 volts single or three phase.
c. Purple, brown, and yellow for circuits at 277/480 volts single or three phase.

3. If there is a local code stating wire color, the local code shall supersede.

B. Neutral Conductors: White 120/208 volts, neutral gray 277/480 volts. When two or more neutrals are located in one conduit, individually identify each with proper circuit number.

C. Branch Circuit Conductors: Install three or four wire home runs with each phase uniquely color coded.

D. Feeder Circuit Conductors: Uniquely color code each phase.

E. Ground Conductors:
1. For 6 AWG and smaller: Green.
2. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

END OF SECTION

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Conduit supports.
2. Formed steel channel.
3. Spring steel clips.
4. Firestopping relating to electrical work.
5. Firestopping accessories.
6. Equipment bases and supports.

1.2 REFERENCES

A. ASTM International:
1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
4. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.

B. FM Global:
1. FM - Approval Guide, A Guide to Equipment, Materials & Services Approved By Factory Mutual Research For Property Conservation.

C. National Fire Protection Association:
1. NFPA 70 - National Electrical Code.

D. Underwriters Laboratories Inc.:
1. UL 263 - Fire Tests of Building Construction and Materials.
2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
3. UL 1479 - Fire Tests of Through-Penetration Firestops.
4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
5. UL - Fire Resistance Directory.

E. Intertek Testing Services (Warnock Hersey Listed):
1. WH - Certification Listings.

1.3 DEFINITIONS

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 SUBMITTALS

A. Shop Drawings: Indicate system layout with location and detail of trapeze hangers.

B. Product Data:
1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
2. Firestopping: Submit data on product characteristics, performance and limitation criteria.

C. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.

D. Design Data: Indicate load carrying capacity of trapeze hangers.

E. Manufacturer's Installation Instructions:
1. Hangers and Supports: Submit special procedures and assembly of components.
2. Firestopping: Submit preparation and installation instructions.

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

G. Engineering Judgments: For conditions not covered by UL or WH listed designs, submit judgments by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

B. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.

PART 2 - PRODUCTS

2.1 CONDUIT SUPPORTS

A. Manufacturers:
1. Allied Tube & Conduit Corp.
2. Electroline Manufacturing Company
3. B-Line
4. Unistrut
5. Power Strut
6. Kindorf

B. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads. Minimum diameter 3/8 inch.

C. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.

D. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.

E. Conduit clamps - general purpose: One-hole malleable iron for surface mounted conduits.

F. Cable Ties: High strength nylon temperature rated to 185 degrees F. Self locking.

2.2 FORMED STEEL CHANNEL

A. Manufacturers:
1. Allied Tube & Conduit Corp.
2. B-Line Systems
3. Midland Ross Corporation, Electrical Products Division.
4. Unistrut Corp.
5. Powerstrut
6. Kindorf

B. Product Description: Galvanized 12 gage thick steel. With holes 1-1/2 inches on center.

2.3 SPRING STEEL CLIPS

A. Product Description: Mounting hole and screw closure.

2.4 FIRESTOPPING

A. Manufacturers:
1. Dow Corning Corp.
2. Fire Trak Corp.
3. Hilti Corp.
4. International Protective Coating Corp.
5. 3M fire Protection Products.
6. Specified Technology, Inc.

B. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.

1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
2. Foam Firestopping Compounds: Single component foam compound.
3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
4. Fiber Stuffing and Sealant Firestopping: Composite of mineral or ceramic fiber stuffing insulation with silicone elastomer for smoke stopping.
5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.
7. Firestop Pillows: Formed mineral fiber pillows.

2.5 FIRESTOPPING ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Dam Material: Permanent:
1. Mineral fiberboard.
2. Mineral fiber matting.
3. Sheet metal.
4. Plywood or particle board.
5. Alumina silicate fire board.

C. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

D. General:
1. Furnish UL listed products or products tested by independent testing laboratory.
2. Select products with rating not less than rating of wall or floor being penetrated.

E. Non-Rated Surfaces:
1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where piping is exposed.
2. For exterior wall openings below grade, furnish mechanical sealing device to continuously fill annular space between piping and cored opening or water-stop type wall sleeve.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify openings are ready to receive sleeves.

B. Verify openings are ready to receive firestopping.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

C. Install backing and damming materials to arrest liquid material leakage.

D. Obtain permission from Contacting Officer before using powder-actuated anchors.

E. Do not drill or cut structural members.

3.3 INSTALLATION - HANGERS AND SUPPORTS

A. Anchors and Fasteners:

1. Concrete Structural Elements: Provide precast inserts, expansion anchors and preset inserts.
2. Steel Structural Elements: Provide beam clamps and spring steel clips.
3. Concrete Surfaces: Provide expansion anchors.
4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Provide toggle bolts and hollow wall fasteners.
5. Solid Masonry Walls: Provide expansion anchors and preset inserts.
6. Sheet Metal: Provide sheet metal screws.
7. Wood Elements: Provide wood screws.

B. Install conduit and raceway support and spacing in accordance with NEC.

C. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.

D. Install multiple conduit runs on common hangers.

E. Supports:
1. Fabricate supports from structural steel or formed steel channel. Install hexagon head bolts to present neat appearance with adequate strength and rigidity. Install spring lock washers under nuts.
2. Install surface mounted cabinets and panelboards with minimum of four anchors.
3. In wet and damp locations install steel channel supports to stand cabinets and panelboards 1 inch off wall.
4. Support vertical conduit at every other floor.

END OF SECTION

SECTION 26 05 33

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes conduit and tubing, surface raceways, wireways, outlet boxes, pull and junction boxes, and handholes.

1.2 REFERENCES

A. American National Standards Institute:
1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.
3. ANSI C80.5 - Aluminum Rigid Conduit - (ARC).

B. National Electrical Manufacturers Association:
1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
3. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
4. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports.
5. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
6. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit.
7. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

1.3 SYSTEM DESCRIPTION

A. All wiring shall be in conduit unless specifically noted otherwise.

B. All conduit shall be concealed behind walls, below floors, below roof and above ceilings unless the space is an unfinished area or utility space such as a mechanical or electrical room or unless specifically noted otherwise.

C. All conduit shall be run above slab unless specifically shown on the drawings or described otherwise.

D. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.

1.4 DESIGN REQUIREMENTS

A. Minimum Raceway Size: ½ inch unless otherwise specified.

1.5 SUBMITTALS

A. Product Data: Submit for the following:
1. Flexible metal conduit.
2. Liquidtight flexible metal conduit.
3. Nonmetallic conduit.
4. Flexible nonmetallic conduit.
5. Nonmetallic tubing.
6. Raceway fittings.
7. Conduit bodies.
8. Surface raceway.
9. Wireway.
10. Pull and junction boxes.
11. Handholes.

B. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.6 CLOSEOUT SUBMITTALS

A. Project Record Documents:

1. Record actual routing of conduits larger than 2 inches.
2. Record actual locations and mounting heights of outlet, pull, and junction boxes.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

B. Protect PVC conduit from sunlight.

1.8 COORDINATION

A. Coordinate location of boxes and devices with architectural elevations and shop drawings of mill and case work.

B. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.

C. Coordinate switch locations with door swings.

PART 2 - PRODUCTS

2.1 METAL CONDUIT

A. Rigid Steel Conduit (RMC-S): ANSI C80.1.

B. Rigid Aluminum Conduit (RMC-A): ANSI C80.5.

C. Intermediate Metal Conduit (IMC): Rigid steel.

D. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit.

2.2 PVC COATED METAL CONDUIT

A. Product Description: NEMA RN 1; rigid steel conduit (RMC-S) with external PVC coating, 20 thick.

B. Fittings and Conduit Bodies: NEMA FB 1; steel fittings with external PVC coating to match conduit.

2.3 FLEXIBLE METAL CONDUIT

A. Product Description: (FMC) Interlocked steel construction.

B. Fittings: ANSI/NEMA FB 1.

2.4 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

A. Product Description: (LFMC) Interlocked steel or aluminum construction with PVC jacket.

B. Fittings: ANSI/NEMA FB 1.

2.5 ELECTRICAL METALLIC TUBING (EMT)

A. Product Description: ANSI C80.3; galvanized tubing.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel, compression or set screw indenter type.

C. Provide connectors with insulated throat.

2.6 NONMETALLIC CONDUIT

A. Product Description: NEMA TC 2; Schedule 40 PVC (RNC-40) and Schedule 80 PVC (RNC-80).

B. Fittings and Conduit Bodies: NEMA TC 3.

2.7 WIREWAY

A. Product Description: General purpose and Raintight type wireway.

B. Knockouts: None.

C. Size: as indicated on Drawings.

D. Cover: Screw cover.

E. Connector: Slip-in.

F. Fittings: Lay-in type with removable top, bottom, and side; captive screws and drip shield.

G. Finish: Rust inhibiting primer coating with gray enamel finish.

2.8 OUTLET BOXES

A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
1. Minimum 4”x 4”x 2-1/8” deep
2. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch male fixture studs where required.
3. Concrete Ceiling Boxes: Concrete type.
4. Provide boxes installed inside wall cavities with back brace to prevent deflection of box away from finished wall surface.
5. Provide plaster rings of correct depth to match wall thickness and finishes. Verify wall and finish thickness from Architectural documents prior to installation. Wiring devices shall be snuggly attached to boxes. Wiring devices supported by plaster ears of the device or field made spacers will not be acceptable. Remedy of this situation will require removal and replacement of the plaster ring with one of proper depth and repair of the wall and finishes.

B. Nonmetallic Outlet Boxes: NEMA OS 2.

C. Cast Floor Boxes: NEMA FB 1, Type FD, aluminum or cast feralloy. Furnish gasketed cover by box manufacturer.

D. Wall Plates for Finished Areas: As specified in Section 26 27 26.

E. Wall Plates for Unfinished Areas: Furnish gasketed cover.

2.9 PULL AND JUNCTION BOXES

A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

B. Hinged Enclosures: As specified in Section 26 27 16.

C. Surface Mounted Cast Metal Box: NEMA 250, Type 4; flat-flanged, surface mounted junction box:
1. Material: Galvanized cast iron or Cast aluminum.
2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.

D. In-Ground Cast Metal Box: NEMA 250, Type 6, flanged, recessed cover box for flush mounting:
1. Material: Galvanized cast iron or Cast aluminum.
2. Cover: Nonskid cover with neoprene gasket and stainless steel cover screws.
3. Cover Legend: "ELECTRIC".

E. Fiberglass Handholes: Die-molded, glass-fiber [concrete composite] hand holes:
1. Cable Entrance: Pre-cut 6 inch x 6 inch cable entrance at center bottom of each side.
2. Cover: Glass-fiber, weatherproof cover with nonskid finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

3.2 APPLICATION - RACEWAY

A. Dry Locations, Concealed within or suspended under building:
1. EMT.
2. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas.
3. Provide hinged enclosure for large pull boxes.

B. Wet and Damp Locations, Concealed within or suspended under building:
1. RMC-S, RMC-A or IMC.
2. Provide cast metal or nonmetallic outlet, pull, and junction boxes.

C. Exposed within building
1. Below 8’-0” above finished floor: RMC-S, RMC-A or IMC.
2. Above 8’-0”: EMT
3. Provide sheet-metal boxes.
4. Provide flush mounting outlet box in finished areas.
5. Provide hinged enclosure for large pull boxes.

D. Exposed exterior to building:
1. Exposed areas:
a. RMC-S, RMC-A, or IMC.
b. Provide cast metal or nonmetallic outlet, pull, and junction boxes.

E. Connections to equipment:
1. Within building or suspended under building: FMC
2. Exterior to building: LFMC
3. Length of connector: 3’-0” maximum unless noted otherwise.

3.3 INSTALLATION

A. Ground and bond raceway and boxes in accordance with Section 26 05 26.

B. Fasten raceway and box supports to structure and finishes in accordance with Section 26 05 29.

C. Identify raceway and boxes in accordance with Section 26 05 53.

D. Arrange raceway and boxes to maintain headroom and present neat appearance.

3.4 INSTALLATION - RACEWAY

A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.

B. Do not install raceway underground or under-slab unless specifically noted otherwise.

C. Arrange raceway supports to prevent misalignment during wiring installation.

D. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

E. Group related raceway; support using conduit rack. Construct rack using steel channel specified in Section 26 05 29.

F. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports

G. Do not attach raceway to ceiling support wires or other piping systems.

H. Construct wireway supports from steel channel specified in Section 26 05 29.

I. Route exposed raceway parallel and perpendicular to walls.

J. Route raceway installed above accessible ceilings parallel and perpendicular to walls.

K. Route conduit in and under slab from point-to-point.

L. Maintain clearance between raceway and piping for maintenance purposes.

M. Maintain 12 inch clearance between raceway and surfaces with temperatures exceeding 104 degrees F.

N. Cut conduit square using saw or pipe cutter; de-burr cut ends.

O. Bring conduit to shoulder of fittings; fasten securely.

P. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for minimum 20 minutes.

Q. Install conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes.

R. Install no more than equivalent of three 90 degree bends between boxes. Install conduit bodies to make sharp changes in direction, as around beams. Install hydraulic one-shot bender to fabricate bends in metal conduit larger than 2 inch size.

S. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.

T. Install fittings to accommodate expansion and deflection where raceway crosses control and expansion joints.

U. Install insulated bushings or insulated throat bushings at all connections to boxes, fixtures, equipment or other devices and terminations.

V. Install suitable pull string or cord in each empty raceway except sleeves and nipples.

W. Install suitable caps to protect installed conduit against entrance of dirt and moisture.

X. Surface Raceway: Install flat-head screws, clips, and straps to fasten raceway channel to surfaces; mount plumb and level. Install insulating bushings and inserts at connections to outlets and corner fittings.

Y. Close ends and unused openings in wireway.

3.5 INSTALLATION - BOXES

A. Install wall mounted boxes at elevations to accommodate mounting heights as indicated on Drawings or as indicated in architectural elevations. Receptacles shall be mounted at 18” and switches at 48” to center AFF if not otherwise noted.

B. Adjust box location up to 10 feet prior to rough-in to accommodate intended purpose.

C. Orient boxes to accommodate wiring devices oriented as specified in Section 26 27 26 or as indicated in Architectural elevations.

D. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

E. In Accessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

F. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.

G. Do not install flush mounting box back-to-back in walls; install with minimum 6 inches of separation. Install with minimum 24 inches of separation in acoustic rated walls.

H. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.

I. Install stamped steel bridges to fasten flush mounting outlet box between studs.

J. Provide proper bridging or back-of-box support so that there is no deflection in the box when operating a switch or plugging in a cord cap. Inadequately supported boxes and devices shall be removed, repaired and refinished.

K. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

L. Install adjustable steel channel fasteners for hung ceiling outlet box.

M. Do not fasten boxes to ceiling support wires or other piping systems.

N. Support boxes independently of conduit.

O. Install gang box where more than one device is mounted together. Do not use sectional box.

P. Install gang box with plaster ring for single device outlets.

Q. All boxes shall be mounted so that the devices and cover plates are flush to the walls, plumb and level with adjacent devices. If devices are not plumb, the box shall be removed and straightened. Any finishes damaged shall be repaired to the satisfaction of the Contacting Officer.

3.6 INTERFACE WITH OTHER PRODUCTS

A. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation.

B. Locate outlet boxes to allow luminaires positioned as indicated on Drawings.

C. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

3.7 ADJUSTING

A. Adjust flush-mounting outlets to make front flush with finished wall material.

B. Install knockout closures in unused openings in boxes.

3.8 CLEANING

A. Clean interior of boxes to remove dust, debris, and other material.

B. Clean exposed surfaces and restore finish.

END OF SECTION

SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes field applied:
1. Nameplates.
2. Labels.
3. Wire markers.
4. Conduit markers.
5. Stencils.
6. Lockout Devices.

1.2 REFERENCES

A. NFPA 70 – National Electrical Code

1.3 SUBMITTALS

A. Product Data:
1. Submit manufacturer’s catalog literature for each product required.
2. Submit electrical identification schedule including list of wording, symbols, letter size, color coding, tag number, location, and function.

B. Manufacturer's Installation Instructions: Indicate installation instructions, special procedures, and installation.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of tagged devices; include tag numbers.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Accept identification products on site in original containers. Inspect for damage.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

C. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Install labels and nameplates only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.

PART 2 - PRODUCTS

2.1 NAMEPLATES AND LABELS

A. Product Description:
   1. Laminated three-layer plastic with engraved black letters on white contrasting background color.

B. Letter Size:
   1. 1/8 inch high letters for identifying individual equipment and loads.
   2. 1/4 inch high letters for identifying grouped equipment and loads.

C. Minimum nameplate thickness: 1/8 inch.

2.2 WALL PLATE IDENTIFICATION

A. Section 26 27 26 – Wire Devices: Cover plate identification.

2.3 WIRE MARKERS

A. Description: Cloth tape, split sleeve, or tubing type wire markers.

B. Legend:
   1. Power and Lighting Circuits: Branch circuit or feeder number as indicated on Drawings.
   2. Control Circuits: Control wire number as indicated on Drawings.

2.4 CONDUIT AND RACEWAY MARKERS

A. Description: Labels fastened with adhesive or Stencils.

B. Color:
   1. 480 Volt System: Red lettering on white background.
   2. 208 Volt System: Black lettering on white background.

C. Legend:
   1. 277/480 Volt System: HIGH VOLTAGE.
   2. 208 Volt System: 208 VOLTS.

2.5 STENCILS

A. Stencils: With clean cut symbols and letters of following size:
   1. Up to 2 inches Outside Diameter of Raceway: 1/2 inch high letters.
   2. 2-1/2 to 6 inches Outside Diameter of Raceway: 1 inch high letters.

B. Stencil Paint: As specified in Section 09 90 00, semi-gloss enamel, colors conforming to the following:
   1. Black lettering on white background.
   2. White lettering on gray background.
   3. Red lettering on white background for emergency circuits.

PART 3 - EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.2 INSTALLATION

A. Install identifying devices after completion of painting.

B. Nameplate Installation:
   1. Install nameplate parallel to equipment lines.
   2. Install nameplate for each electrical distribution and control equipment enclosure with corrosive-resistant mechanical fasteners, or adhesive.
   3. Install nameplates for each control panel and major control components located outside panel with corrosive-resistant mechanical fasteners, or adhesive.
   4. Secure nameplate to equipment front using screws or rivets.
   5. Secure nameplate to inside surface of door on recessed panelboard in finished locations.
   6. Install nameplates for the following:
      a. Switchboards.
      b. Panelboards.
      c. Transformers.
      d. Service Disconnects.
      e. Equipment Disconnects.
      f. Starters.
      g. Equipment Controllers (VFD, Contactors, etc.)

C. Label Installation:
   1. Install label parallel to equipment lines.
   2. Install labels for permanent adhesion and seal with clear lacquer.

D. Wire Marker Installation:
   1. Install wire marker for each conductor at panelboard gutters, pull boxes, and each load connection.
   2. Mark data cabling at each end. Install additional marking at accessible locations along the cable run.

E. Raceway Marker Installation:
   1. Install raceway marker for each conduit or raceway longer than 20 feet.
   2. Raceway Marker Spacing: 20 feet on center.
   3. Raceway Painting: Identify conduit using field painting in accordance with Section 09 90 00
      a. Paint colored band on each conduit longer than 20 feet.
      b. Paint bands 20 feet on center.
      c. Color:

1) 480 Volt System: Blue.
2) 208 Volt System: Yellow.

F. Stencil Installation:
1. Apply stencil painting in accordance with architectural painting Section.

END OF SECTION

SECTION 26 51 01

LIGHTING

PART 1 - GENERAL

1.1 SCOPE

A. Furnish and install all labor and materials as required for complete and working lighting system including:
   1. Light Fixtures

1.2 GENERAL

A. Provide interior lighting fixtures and emergency lighting units which have been UL listed and labeled.

1.3 SUBMITTALS

A. Submit manufacturer's data on lighting fixtures, lamps and ballasts.
   1. Include electrical ratings and photometric data with certified results of independent laboratory tests.
   2. Include data on batteries of emergency lighting units.

B. Submit dimensioned drawings of lighting fixtures. Submit fixture shop drawings in booklet form with separate sheet for each fixture, assembled in order of luminaire "Type" designation with proposed fixture and accessories clearly indicated on each sheet.

PART 2 - PRODUCTS

2.1 LIGHTING FIXTURES

A. Provide lighting fixtures and components of sizes, types, and ratings as indicated on drawings and listed in fixture schedule, complete with drivers, ballasts, lamps, starters, suspension accessories, canopies, hickey, casings, sockets, lamp holders, frames, housings, and wiring. Verify type and fire-rating of actual ceiling suspension system to be installed by Ceiling Contractor prior to ordering fixtures. If fixture type designation is omitted, fixture shall be same type as scheduled for rooms of similar usage.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Lighting fixtures shall be installed in symmetrical patterns with ceiling grids, partitions, air devices, speakers, etc. Locations shown on electrical drawings are of a general nature and shall not be scaled for location. Contractor shall refer to Architectural reflected ceiling plans for specific locations of light fixture locations.

B. Fixtures shall be installed in neat, workmanlike appearance. Recessed fixtures shall have trims or frames installed "snug" to ceilings; surface mounted fixtures shall have housings

installed "snug" to ceilings and plumb; stem mounted fixtures shall have stems installed plumb.

C. Clean fixtures of dirt and debris upon completion of installation. Protect fixtures already installed, from damage during remainder of construction.

D. Recessed lighting fixtures shall have four (4) tie wires on each fixture (one at each corner) connected to structure. Connection to other systems is not acceptable. Tie wires shall be galvanized steel, as used for suspending ceiling tiles.

E. Upon completion of installation of lighting fixtures, and after building circuitry is energized, apply energy to demonstrate compliance with requirements. Correct malfunctioning units and replace defective lamps, then retest.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Project Description

1. Project consists of upgrading the Williamson County South Jail existing Security Voice Communication System (SVCS).

2. The work of this project will be as a subcontract to and under the control of the General Contractor (GC).

B. Scope of Work

1. The system consists of an existing Harding Instruments MicroComm DXL Series digital intercom system.

2. Provide new cable and intercom substations. Terminate cable to the existing intercom Harding Instruments head-in equipment.

3. Program equipment provided in the Work into the SVCS. Coordinate descriptions, master calls, and other information required for programming with the Owner.

4. Provide rack mount uninterruptable power supply to support the existing head in equipment during switch over to generator during building AC power fail conditions.

5. The SVCS shall utilize analog intercom stations.

6. Provide conduit and J-boxes for SVCS cable and devices.

7. Provide all system expansion programming and configuration required to deliver a complete and functional system.

1.02 SUBMITTALS

A. Submit for approval prefabrication submittals consisting of product data and shop drawings. Submit proposed deviations in writing for approval by the Security Consultant. Work shall be in accordance with approved submittals.

B. General

1. Provide submittal packages in electronic format.

2. The Owner and Security Consultant will review and approve submittal packages.

3. Submit packages to the GC for distribution to reviewers.

4. Submit a letter of transmittal with submittals identifying the name of the Project, Contractor's name, date submitted for review, and a list of items transmitted.

5. Partial Submittals shall not be accepted without prior written approval by the Security Consultant. The Security Consultant cannot verify the SVCS design without complete and thorough descriptions of components and installation details.

6. Details, block diagrams, legends, symbols, and other drawing elements prepared by the Security Consultant are not intended to be complete shop drawing designs, shall not be considered submittals, and shall not be accepted as submittals for the Work.

7. For the purposes of this Project, it is assumed that Submittals comply with and accurately reflect the requirements of the Contract Documents. The review and approval of the Contractor's Submittals shall not relieve the Contractor of the obligations to comply with the requirements of the Contract Documents.

8. No portion of the Work shall commence, nor shall equipment be ordered until the Security Consultant has approved the Submittals in writing.

9. There shall be no deviation from the approved Submittals unless otherwise stated in the Contract Documents or pre-approved in writing by the Security Consultant prior to the Work being performed.

C. Prefabrication Submittals

1. Prefabrication submittals shall consist of the Contractor's construction schedule, product data, shop drawings, and samples.

2. The A/E will provide AutoCad *.dwg files at the contractor’s request and upon signing a standard release form to serve as backgrounds for shop drawing production. The contractor shall produce shop drawings in both *.dwg and *.pdf formats. Keep shop drawing files up to date with any as-constructed changes. The drawings shall be used as as-built documents in the close-out submittal. Provide product data in *.pdf format.

3. The purpose of the SVCS prefabrication submittals is to provide information as noted below. Provide documents necessary to comply with these requirements, demonstrate understanding and compliance with contract requirements, and provide details necessary for technicians to provide a consistent and compliant installation. Incorporate the Owner's naming and numbering conventions in the submittal drawings, equipment schedules, and other unique identifiers.

   a. Product and software descriptions necessary to explain the operation and implementation of custom products.

   b. Legend with specific description of each device symbol and wiring designation.

   c. Floor plans necessary to identify specific device locations, cable routes and quantities, cable types, riser locations, and references to installation details and diagrams.

   d. Riser diagrams necessary to clearly identify cable routes between floors, closets, rooms, buildings, and other areas that cannot be clearly identified on floor plans.

   e. Device termination details necessary to ensure consistent installation by personnel and subcontractors.

   f. Head end termination details and schedules necessary to ensure that installation personnel and subcontractors properly connect devices to the DCC, DCE, and PZE, equipment, and other head end equipment.

   g. Wire and cable types and samples necessary to verify cable types and confirm installed wire and cable.

h. Labeling scheme and example for each type of wire, field device, field enclosure, junction box, etc. for approval.

i. Drawings for custom equipment as required for the Security Consultant to review and approve the design for compliance with application and use for the product.

j. Color, finish, and other samples necessary for review and approval of product options. Coordinate sample submittal requirements and provide samples as directed by the Owner.

k. Product samples as requested for review and approval of product applications.

4. Construction Schedule

a. Provide a detailed construction schedule in coordination with the GC that identifies milestones and completion dates. The schedule will be used by the Owner and Security Consultant to verify progress during construction.

D. Record Documentation

1. Provide 3 hard copies in a 3-ring binder and 3 electronic copies of record documentation on individual USB flash drives.

2. Record documentation shall consist of product data, as-built drawings (prefabrication drawings revised to reflect as-installed conditions), final programming records (e.g. programming and naming information, IP addresses, passwords, etc.) and operations and maintenance (O&M) manuals.

3. Record document shop drawings shall be in both AutoCad *.dwg and *.pdf formats.

1.03 QUALITY ASSURANCE

A. Contractor Qualifications

1. A single contractor shall provide the Work specified in this Specification.

2. The Contractor shall:

a. Specialize in detention SVCS projects.

b. Be a Harding Instruments authorized and fully trained distribution partner and provide an installation in compliance with the Harding Instruments guidelines for warranty.

c. Maintain security contractor licenses for the State of Texas.

d. Maintain a service facility and organization with staffing capable of providing comprehensive maintenance and service for the specified systems within a 100 mile radius of the Project.

e. Maintain certifications, training and licenses as required to purchase, install, modify, and service the specified systems.

f. Have a minimum of three years experience in the fabrication, assembly, and installation of systems of similar complexity as specified herein.

g. Ensure compliance with and have a thorough understanding of local codes and contract conditions pertaining to the Work.

h. Have local in-house engineering and project management capabilities consistent with the requirements of the Work. Provide a team managed by a project manager responsible for submittals, installation, scheduling, manpower, testing, record documents, subcontractors, etc.

i. Provide the following spare parts inventory to the owner:

1) 20 Harding MicroComm ICE-330-217-000 Intercom substations.

2) 2 Intercom substations with privacy switch.

3. Submit the following information with the bid proposal:

a. Proof of security contractor licenses from the Texas Department of Public Safety's Private Security Bureau for both the firm and the employees working on the site.

b. Proof of on-site personnel manufacturer certifications, training, and licenses required to purchase, install, modify, and service the specified systems.

1) Indicate compliance of proposed equipment and services by the word "Comply" following the associated paragraph number.

2) Indicate an exception to the requirement by the word "Exception" following the associated paragraph number.

3) Should the proposed equipment and services not entirely comply with the specified requirements, but achieve the intent; indicate the clarification to the requirement with the word "Clarification" followed by a compliance explanation.

4) Paragraphs with no indication of compliance or acceptance shall be considered non-compliant.

5) The Owner or Security Consultant may disqualify bid proposals that do not include a compliance statement.

B. Product Standards

1. All products shall be completely and seamlessly compatible with existing systems. Provide all programming, software and hardware necessary to make the new systems and components perform with the existing systems. At the time of installation provide the latest available version of software, firmware, and equipment.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Ensure that products and equipment stored on the Project site and in the Contractor's facilities are protected from theft or damage. Stored equipment is the responsibility of the Contractor.

1.05 WARRANTY

A. Furnish a one-year warranty for the Work. The Warranty shall begin at Project Substantial Completion and after acceptance of the Project by the Security Consultant and Owner’s Representative.

1. Provide repair or replacement service during the warranty period. Perform repair and replacement work as follows:

    a. 8:00 am - 5:00 pm business days, excluding holidays, four (4) hour onsite response time. Service calls reported before noon shall require same day response unless coordinated otherwise with the Owner.

2. Warranty service and repair work shall be performed by personnel who have been trained, certified and are experienced in the operation and maintenance of the installed system(s)

PART 2 - PRODUCTS AND EXECUTION

2.01 Equipment – As scheduled on the Drawings

1. Verify specific equipment locations to provide the best fit and function. Verify locations with the Owner and Security Consultant as necessary.

2. Install equipment in accordance with manufacturer specifications.

3. Provide tamper resistant screws and fasteners for all field equipment.

4. Remove dirt, packaging, wiring scraps, and other debris from equipment, boxes, and cabinets at the end of each work day.

2.02 CONDUIT, BOXES, AND RACEWAYS

A. Provide conduit, junction boxes, pull boxes, wire troughs, and wire ways as required for the SVCS.

B. Provide raceway and boxes as specified in Section 260533 – Raceway and Boxes.

C. Provide 3/4" diameter minimum conduit. Do not exceed 60% conduit fill.

D. Install conduit, cable and wire parallel and square with building lines.

E. Install vertical wiring and main trunk/riser wiring in a raceway/conduit system. Adequately size riser boxes for the number of conductors traversing the respective box and the number of terminations required.

F. Provide conduit between power sources and SVCS low voltage power supplies.

G. Provide conduit between interface terminal cabinets and pull boxes and equipment.

H. Carefully install conduit, properly and adequately support conduit as required to comply with the requirements specified herein and as required by the NEC, and provide a neat, workmanlike installation. Support horizontal conduit runs with clamps, pipe straps, special brackets, or heavy iron ties secured to building structure.

I. Drill required inserts and saw cut or core drill openings required through concrete or masonry with tools specifically designed for this purpose. Keep annular space around penetrating item to a minimum

J. Swab out and remove burrs from conduit before pulling wires.

K. Lay out and install conduit runs to avoid proximity to hot pipes. Provide a minimum of three inches distance to such pipes, except where crossings are unavoidable. Where crossings are necessary, provide a minimum of two inches from the covering of the pipe.

L. Provide fire stops where conduits penetrate fire rated walls and floors. Reference Div. 26 for firestopping. Provide sound caulking at all non-fire rated penetrations.

M. The Owner shall approve a sample conduit installation for each exposed condition prior to installation. No exposed conduit shall be installed unless approved by the Owner.

2.03 LABELING

A. Label wires and cables as follows:

1. Mark wire and cable in common at both ends with computer generated labels fastened with transparent heat shrink material.

2. Markers to be readable from left to right or top to bottom. Locate labels near termination points.

3. Install labels when wire and cables are installed.

4. Labeling shall agree with record documentation.

2.04 PROJECT COMPLETION PROCESS

A. Program the SVCS as necessary.

B. Project Completion and Final Acceptance Testing

1. During Construction

a. Conduct Pre-Functional Tests (PFT) of devices upon completion of termination with DCC's, DCE's, and PZE's.

b. Test and document device connections to verify termination and operation in accordance with prefabrication submittals.

c. Revise termination and operation information in the prefabrication submittals for inclusion in Record Documents.

C. Prior to final acceptance test, provide two sets of preliminary (draft) as-built drawings to the Owner' Rep and the Security Consultant. The drawings will be used to conduct the Final Acceptance test.

2.05 FINAL ACCEPTANCE TEST

A. Equipment shall be on and operational during testing procedures. Provide personnel, equipment, and supplies necessary to perform site testing. Provide a minimum of two employees familiar with the system for the Final Acceptance test. One employee shall monitor and verify intercom calls while the other will demonstrate the function of each device. Supply at least two two-way radios and spare batteries for use during the test. The Contractor shall make no adjustments, repairs, or modifications during the test without the permission of the Security Consultant. Make tools and ladders necessary to access equipment readily available.

B. Upon verification that punch list items are complete, the Security Consultant will issue a final acceptance letter.

Bid 1901-286
Williamson County, Texas

GENERAL NOTES

1. THESE DRAWINGS SHOW THE GENERAL INTENT TO RECEIVE A QUALITY FINISHED PRODUCT. A JOB SITE VISIT TO VERIFY EXIST. CONDITIONS MUST BE MADE BY ALL TRADES. FAILURE TO DO SO WILL NOT CONSTITUTE AN EXTRA. THE CONTRACTOR IS RESPONSIBLE FOR INCLUDING ALL ITEMS REQUIRED WHETHER OR NOT ALL CONDITIONS ARE SHOWN.

2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH CITY OF GEORGETOWN STANDARDS.

3. ALL IMPROVEMENTS REMOVED OR DAMAGED BY CONSTRUCTION OPERATIONS SHALL BE REPLACED OR RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO BEGINNING CONSTRUCTION.

4. PROVIDE AT EACH & EVERY CABINETRY LOCATION A CONTINUOUS CAULK BEAD WHERE BASE & UPPER CABINETS MEET ADJACENT WALL SURFACES, AND CONTINUOUS CAULK BEAD WHERE COUNTER TOPS MEET W/ SPLASH EDGE.

SUBMITTAL REQUIREMENTS

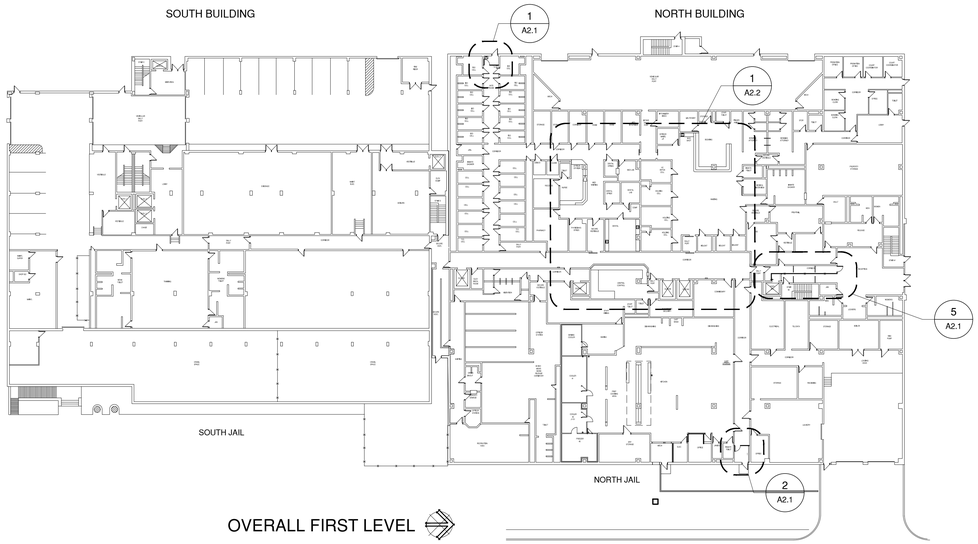
1. COUNTERTOP/BACKSPLASH SHOP DRAWINGS

2. PHONE WALL SHOP DRAWINGS

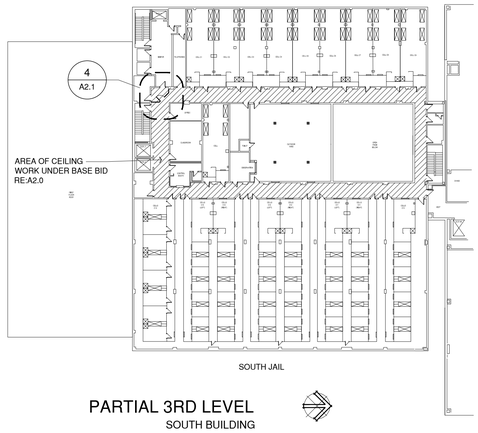
3. SHOP DRAWINGS FOR MESH PARTITIONS/MAN TRAPS TO INCLUDE.

   a. FLOOR/WALL CONNECTION DETAILS
   b. HARDWARE/LOCK SETS - DOORS TO BE KEYED PER OWNERS REQUIREMENTS
   c. OVERHEAD BRACING DETAILS
   d. COLOR SELECTION CHART

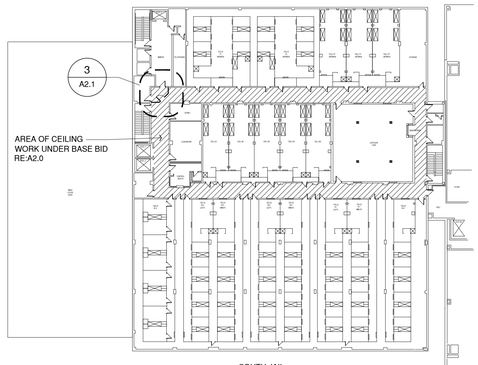
4. CEILING GRID AND ACOUSTICAL PANEL DRAWINGS/PRODUCT INFORMATION.



OVERALL FIRST LEVEL



PARTIAL 3RD LEVEL
SOUTH BUILDING



PARTIAL 2ND LEVEL
SOUTH BUILDING

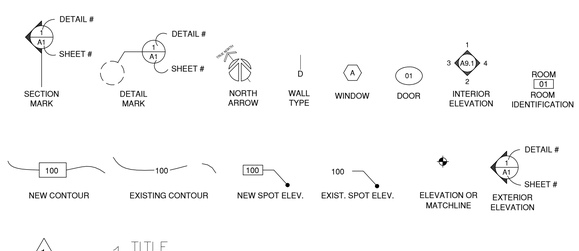
1 REFERENCE PLANS

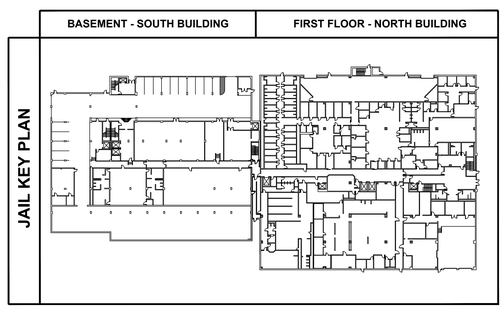
NTS

ABBREVIATIONS

ABV.	ABOVE	F.O.S.	FACE OF STUD	PLAS. LAM.	PLASTIC LAMINATE
A.C.T.	ACOUSTICAL CEILING TILE	FRP	FIBERGLASS REINFORCED PLASTIC	R.	RISER
ACM	ALUMINUM COMPOSITE MATERIAL	GALV.	GALVANIZED	RE:	REFER (T0)
ADJ.	ADJUSTABLE	GA.	GAUGE or GAGE	REF.	REFRIGERATOR
A.F.F.	ABOVE FINISH FLOOR	G.C	GENERAL CONTRACTOR	REINF.	REINFORCE(D)
ALUM.	ALUMINUM	GYP.BD.	GYPSUM BOARD	REQD.	REQUIRED
ANOD.	ANODIZED	H.C.	HOLLOW CORE	R.D.	ROOF DRAIN
ARCH.	ARCHITECT(URAL)	H.M.	HOLLOW METAL	RND.	ROUND
BLDG.	BUILDING	HORIZ.	HORIZONTAL	R.	ROUGH
B.U.R.	BUILT UP ROOF	HT.	HEIGHT	O.	OPENING
C.J.	CONTROL JOINT	I.D.	INSIDE DIAMETER	S.C.	SOLID CORE
CLG.	CEILING	I.D.	INSIDE DIAMETER	S.F.	SQUARE FEET
CONC.	CONCRETE	ISO.	ISOMETRIC	SIM.	SIMILAR
CONT.	CONTINUOUS	JT.	JOINT	SPEC.	SPECIFICATIONS
C.T.	CERAMIC TILE	K.S.	KNEE SPACE	S.S.	STAINLESS STEEL
DIA.	DIAMETER	LAV.	LAVATORY	STD.	STANDARD
DK	DARK	MAX.	MAXIMUM	STL.	STEEL
D.S.	DOWN SPOUT	MBM	METAL BUILDING MANUFACTURER	STRUCT.	STRUCTURAL
DWG.	DRAWING	MECH.	MECHANICAL	T.	TREAD
DW	DISHWASHER	MET.	METAL	T.O.S.	TOP OF STEEL
(E)	EXISTING	MFR.	MANUFACTURER	T.O.C.	TOP OF CONCRETE/CURB
EXIST.	EXISTING	M.R.	MOISTURE RESISTANT	T.O.M.	TOP OF MASONRY
EA.	EACH	MTL.	MATERIAL	T.O.R.	TOP OF ROOF
E.J.	EXPANSION JOINT	(N)	NEW	T.O.W	TOP OF WALL
ELEC.	ELECTRICAL	NAT.	NATURAL	TYP.	TYPICAL
EL.	ELEVATION	N.I.C.	NOT IN CONTRACT	U.N.O.	UNLESS NOTED OTHERWISE
EQ.	EQUAL	NOM.	NOMINAL	V.C.T.	VINYL COMPOSITION TILE
EQUIP.	EQUIPMENT	N.T.S.	NOT TO SCALE	VERT.	VERTICAL
E.W.C.	ELECTRIC WATER COOLER	O.C.	ON CENTER	V.I.F.	VERIFY IN FIELD
FIN.	FINISH(ES)(ED)	O.D.	OUTSIDE DIAMETER	V.W.C.	VINYL WALL COVERING
F.E.	FIRE EXTINGUISHER	O.F.	OVERFLOW DRAIN	W	WITH
F.E.C.	FIRE EXTINGUISHER CABINET	O.F.C.I.	OWNER FURNISHED CONTRACTOR INSTALLED	W.C.	WATER CLOSET
F.D.C.	FIRE DEPARTMENT CONNECTION	OPG.	OPENING	W.H.	WATER HEATER
F.D.	FLOOR DRAIN	OPP.	OPPOSITE	W.R.	WATER RESISTANT
FL.	FLOW	PR.	PAIR	W.W.F.	WELDED WIRE FABRIC
F.O.C.	FACE OF CONCRETE	PRKG.	PARKING		
F.O.F.	FACE OF FINISH				

SYMBOLS LEGEND





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12-10-18

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WILLIAMSON COUNTY
SOUTH - JAIL RENOVATION
306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

PROJECT NO:	TALX1800911
DRAWN BY:	JW
DESIGNED BY:	DV
CHECKED BY:	DV

SHEET TITLE
REFERENCE PLANS

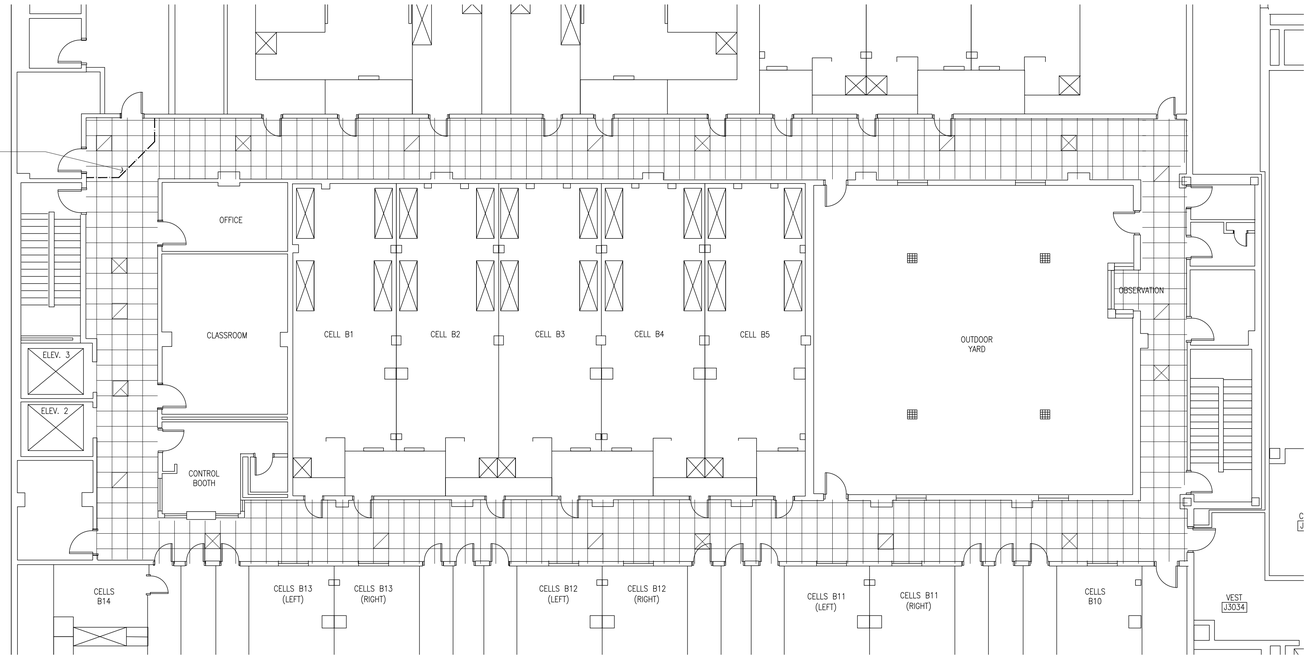
A1.1
SHEET

1/8/2019 12:01 PM

Bid 1901-286

Williamson County, Texas

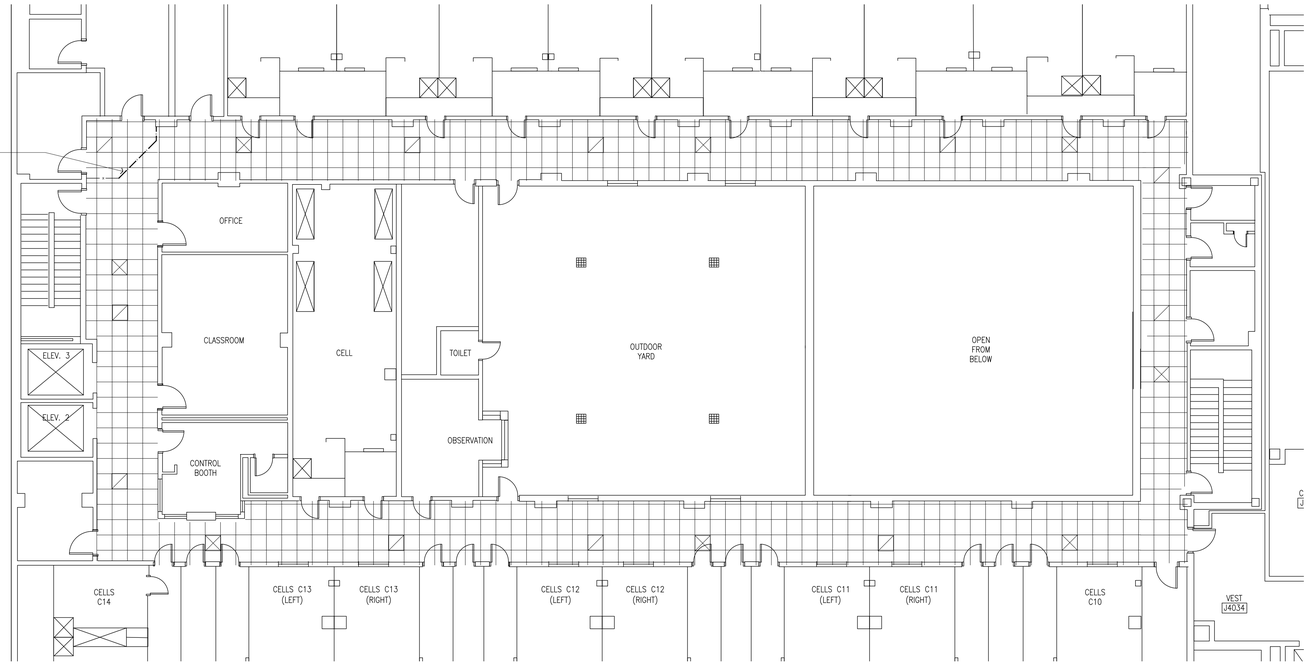
MESH PARTITION BELOW, COORD. W/ LIGHTING (NO LIGHTS ABOVE PARTITIONS)



1 PARTIAL 2ND LEVEL

1/8" = 1'-0"

MESH PARTITION BELOW, COORD. W/ LIGHTING (NO LIGHTS ABOVE PARTITIONS)



2 PARTIAL 3RD LEVEL

1/8" = 1'-0"

BASE BID

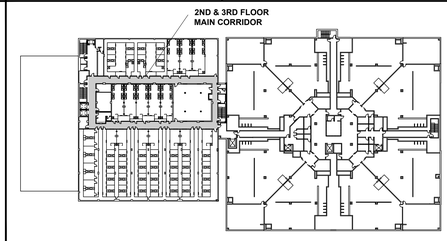
CEILING NOTES

1. REMOVE EXISTING ACT & GRID IN CORRIDORS INDICATED
2. NEW CEILING TILES TO BE:
   a. USG: ROCK FACE ACOUSTICAL PANELS OR APPROVED EQUAL
      1. WET FORMED MINERAL FIBER
   b. PANEL CHARACTERISTICS, TYPE III, FORM 2, PATTERN CE. COMPLYING W/ REQUIREMENTS NOTED BELOW
      1. COLOR/LIGHT REFLECTANCE COEFFICIENT: WHITE /LR 0.86
      2. NOISE REDUCTION COEFFICIENT: NILL 0.55
      3. EDGE DETAIL: SQUARE
      4. THICKNESS: $\frac{3}{4}$"
      5. SIZE: 24"x24"
      6. FIRE RATING: CLASS A FLAME SPREAD 25 OR LESS, SMOKE DEVELOPED 50 OR LESS
3. SUSPENSION SYSTEM TYPE:

   WIDE FACE SINGLE WEB STEEL SUSPENSION SYSTEM
   a. WIRE HANGERS, BRACES AND TIES
      1. ZINC COATED STEEL WIRE: ASTM A 641 (ASTM A 641 M) CLASS 1 ZINC COATING, SOFT TEMPEL
      2. SIZE: SELECT WIRE DIAMETER SO THAT ITS STRESS AT 3 TIMES THE HANGER DESIGN (ASTM C 635, TABLE 1 DIRECT HUNG) WILL BE LESS THAN THE YEILD STRESS OF WIRE BUT PROVIDE NOT LESS THAN 0.106 INCH DIAMETER WIRE.
   b. PROVIDE USG DXLA OR APPROVED EQUAL SUSPENSION SYSTEM

SECOND FLOOR - SOUTH BUILDING	THIRD FLOOR - NORTH BUILDING

JAIL KEY PLAN



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12-10-18

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SOUTH - JAIL RENOVATION
306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

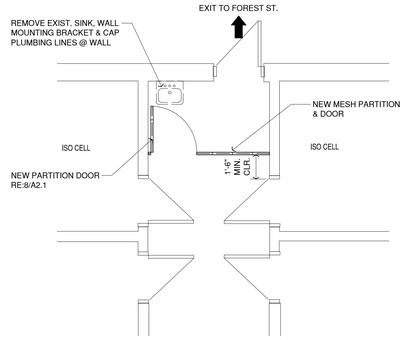
PROJECT NO: TALX1800911
DRAWN BY: JW
DESIGNED BY: DV
CHECKED BY: DV

SHEET TITLE
CEILING PLANS

A2.0
SHEET

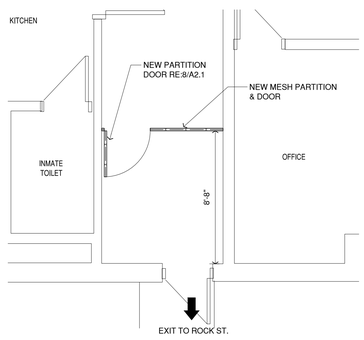
1/8/2019 12:01 PM

Bid 1901-286



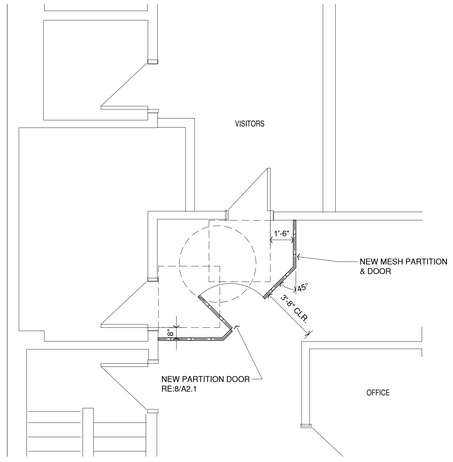
1 ENLARGED PLAN

1/4" = 1'-0" @ FEMALE MED. ISOLATION



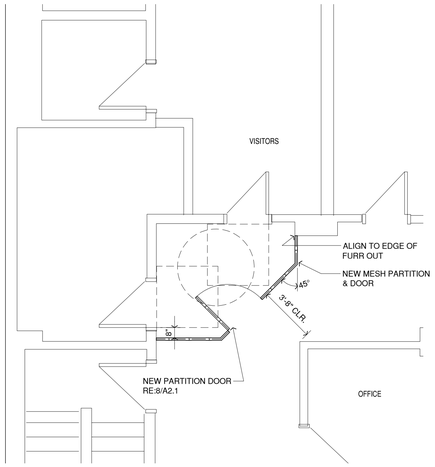
2 ENLARGED PLAN

1/4" = 1'-0" @ KITCHEN HALLWAY EXIT



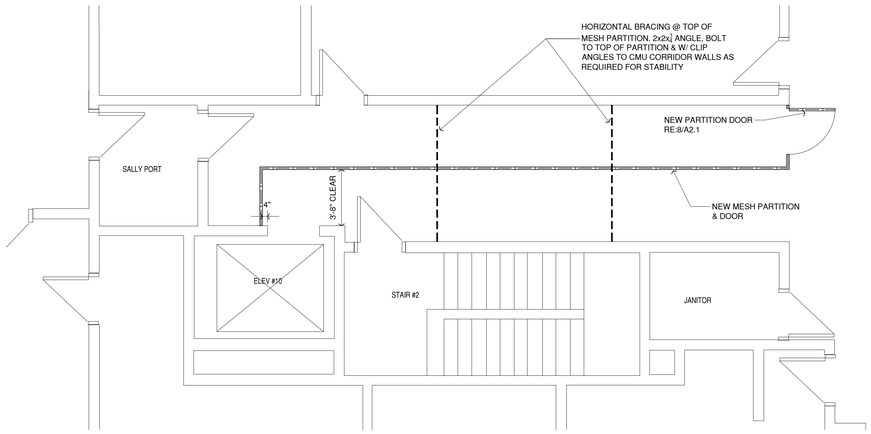
3 ENLARGED PLAN

1/4" = 1'-0" @ SOUTH JAIL 2ND FLOOR VISITATION



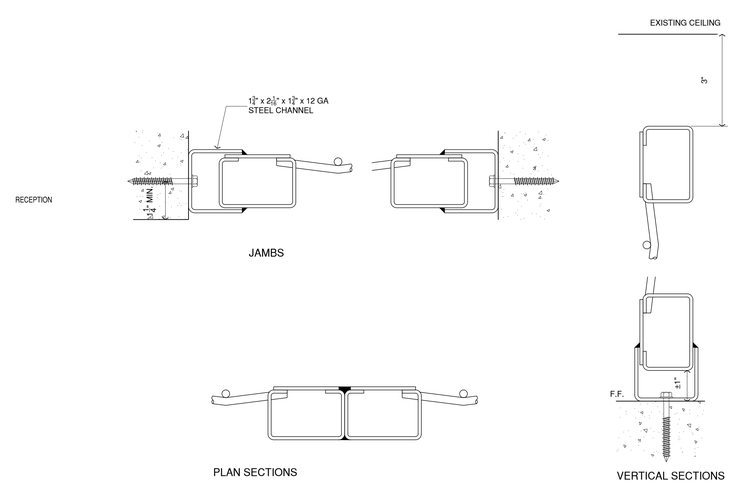
4 ENLARGED PLAN

1/4" = 1'-0" @ SOUTH JAIL 3RD FLOOR VISITATION



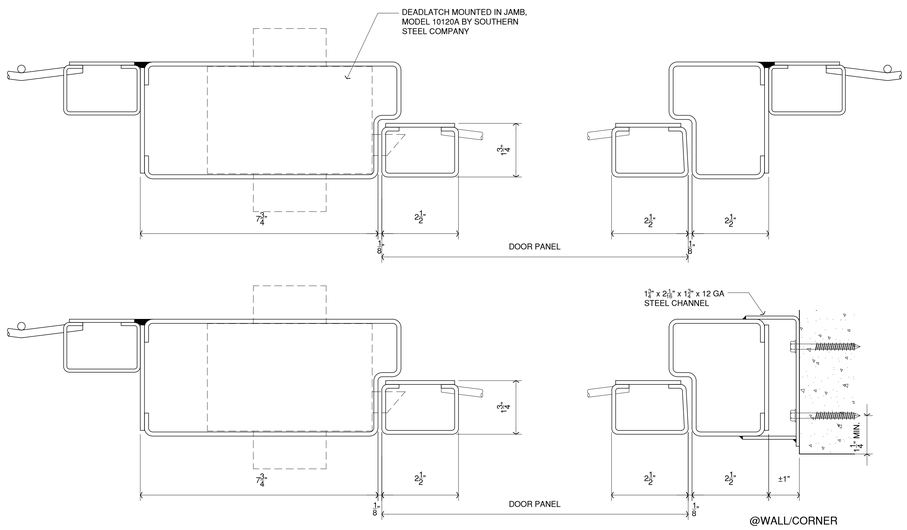
5 ENLARGED PLAN

1/4" = 1'-0" @ RECEPTION @ MAIN ENTRY NORTH JAIL



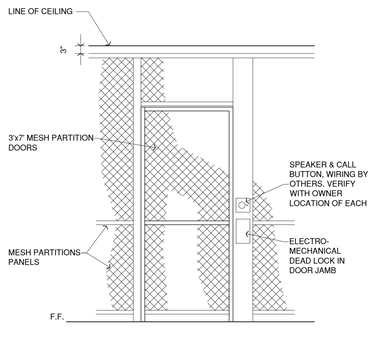
6 PARTITION DETAILS

6" = 1'-0"



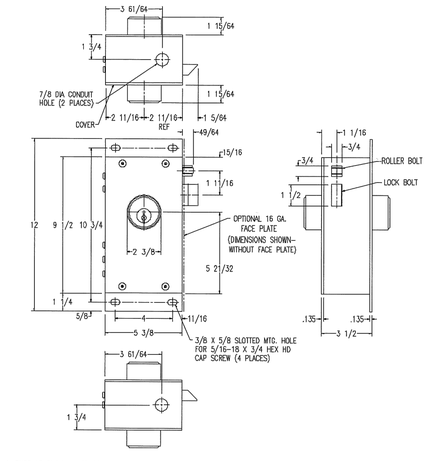
7 DOOR DETAILS

6" = 1'-0" REFER TO PLANS FOR DOOR ORIENTATION



8 PARTITION ELEVATION

1/2" = 1'-0" DOOR ORIENTATION AND LOCATION IN PARTITIONS VARY, REFER TO PLANS



1. RHRB AS SHOWN, LHRB OPPOSITE
2. 10120AE-1 KEYED COVER SIDE , 10120AE-2 KEYED BOTH SIDES
3. BOLT PROJECTION: 1 5/64
4. BOLT TRAVEL: 1
5. SEE DOOR STRIKE TEMPLATE FOR STRIKE DETAIL
6. ALL DIMENSIONS ARE IN INCHES

10120A: E, E-NL, M, MD, MD-NL
ELECTRO-MECHANICAL DEADLOCK (RB)

9 LOCK DETAIL

NTS

ALTERNATE NO. 1

MESH PARTITION GENERAL NOTES

1. **ALL MESH PARTITIONS DESIGNATED TO RECEIVE A DOOR SHALL BE PREPPED/EQUIPPED WITH A SOUTHERN STEEL ELECTRO-MECHANICAL DEAD LOCK, MODEL 10-120A. LOCKSETS TO BE PROVIDED WITH FACE PLATES, SEE DETAIL**
2. **PANELS TO RUN UP TO 3" BELOW CEILING**
3. **MESH PANEL DOORS SHALL BE 36"x7'-0"**
4. **IN ALL MESH WALL LOCATIONS, COORDINATE LOCATION OF CEILING LIGHT & DIFFUSERS. RELOCATE ANY THAT WILL BE DIRECTLY ABOVE NEW MESH PARTITIONS. COORDINATE FINAL LOCATION W/ OWNER.**
5. **PARTITION DETAILS ARE FOR REFERENCE, REFER TO MANUFACTURER'S SPECIFICATIONS & SHOP DRAWINGS.**

MESH PARTITION SPECIFICATIONS

LEVEL 9 Galvannealed Steel Vantage-Wall - Door & Frame
Model: G-D12-P

PART 1 GENERAL
1.01 **Description**
The barriers shown on the plans and herein specified are the products of Kane Architectural Innovations, Erie, Pennsylvania. This manufacturer's name and products have been used to establish the standards of construction and quality of workmanship required for this project. Manufacturers bidding on this project must be actively engaged in the fabrication of specified items for a minimum of five (5) years prior to the bid date. Manufacturers requesting approval to bid their products as equal must submit to the Architect full-size drawings, including details of construction, and a complete operating barrier sample, ten (10) days prior to the bid date.

1.02 **Submittals**
A. Manufacturer shall submit shop drawings, showing details of attachment to surround materials and elevations showing scope of the project.
B. Samples of materials as may be requested without cost to owner: frame sections, woven rod panel, fasteners, mullion section, corner section, etc.

1.03 **Warranty**
The operation of the barrier supplied by Kane Architectural Innovations on the designated project is warranted for one (1) year against any proven defective material or parts, as called for in the specifications and approved shop drawings. This warranty does not cover abuse by others.

PART 2 PRODUCTS
2.01 **Acceptable Manufacturers or approved equal**
Kane Architectural Innovations, Erie, PA
(800) 773-2439

2.02 **Main Frame**
A. The main frame shall be built-up tubular type, measuring 1-3/4" [44.45] x 2-1/2" [63.5], with fixed concealment plates. The open channel frame members shall be formed of not less than 12-gauge A60 galvannealed sheet steel and shall have individual slots along the inner edges to support the woven rod panel. The corners of the main frame shall be notched for self-aligning and robotically welded.
B. Concealment plates of 12-gauge A60 galvannealed steel shall be welded to the back of the main frame approximately 8" [203.2] on center to complete the tubular shape.
C. Braces shall be built-up tubular type, measuring 8-1/2 [215.9] x 2-1/2 [63.5], with fixed concealment plates. Braces shall be formed of not less than 12-gauge A60 galvannealed sheet steel.

2.03 **Finish**
All interior and exterior surfaces of the main frame, rods and concealment plates shall be thoroughly cleaned in a 5-step bonderizing process. The surfaces shall receive an electrostatically applied thermoplastic, polyester powder coating (2.5 mil min. thickness) which shall be applied and baked to a hard mar-resistant finish in one of Kane's standard colors.
- ❑ White
- ❑ Black
- ❑ Dark Bronze
- ❑ Beige
- ❑ Gray
- ❑ Custom colors are available at additional cost with submission of color samples.

2.04 **Rods**
- ❑ Woven rod panels shall be fabricated from double crimped, low carbon, ASTM A641 pre-galvanized steel, ¼ [6.35] diameter rods, woven with 2 [50.8] open space.
- ❑ Woven rod panels shall be fabricated from double crimped, low carbon, ASTM A641 pre-galvanized steel 3/8 [9.52] diameter rods, woven with 2 [50.8] open space.

2.05 **Rod Attachment**
Woven rod panels shall be installed symmetrically into the slotted main frame. Slots shall be centered according to the rod pattern. Each rod shall penetrate into each slot where it contacts the main frame. Every other rod shall be welded into the slot at both ends where it penetrates the main frame.

PART 3 EXECUTION
3.01 **Inspection**
Verify that openings fit allowable tolerances are plumb, level, provide a solid anchoring surface and comply with approved shop drawings.

3.02 **Installation**
A. Install in accordance with approved shop drawings and specifications.
B. Plumb and align faces in a single plane and erect barriers square and true, adequately anchored.
C. After completion of installation, barriers shall be adjusted, in working order and clean.

PART 4 ENVIRONMENTAL REPORTING
4.01 **LEED Materials and Resources**
A. Recycled Content: This product contributes toward satisfying Credit 4 under LEED.
B. Regional Material: This product can contribute toward satisfying Credit 5 under LEED.

LEVEL 9 Fixed Steel Vantage-Wall Barrier
Model: S-V12-Z

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2.02 **Main Frame**
A. The main frame shall be built-up tubular type, measuring 1-3/4" [44.45] x 2-1/2" [63.5], with fixed concealment plates. The open channel frame members shall be formed of not less than 12-gauge sheet steel and shall have individual slots along the inner edges to support the woven rod panel. The corners of the main frame shall be notched for self-aligning and robotically welded.
B. Concealment plates of 12-gauge steel shall be welded to the back of the main frame approximately 8" [203.2] on center to complete the tubular shape.
C. Braces shall be built-up tubular type, measuring 1-1/4" [31.75] x 2-1/2" [63.5], with fixed concealment plates. Braces shall be formed of not less than 12-gauge sheet steel and furnished when required.

2.03 **Perimeter Channel**
Perimeter channel shall be a formed channel 1-3/4" [44.45] x 2-1/16" [52.39] x 1-3/4" [44.45] of not less than 12-gauge sheet steel. Channels provided in stock lengths with factory punched 1/4" [6.35] diameter holes approximately 12" [304.8] on center for attachment to structure.

2.04 **Finish**
All exterior surfaces of the main frame, concealment plates and rod shall be thoroughly cleaned in a 5-step bonderizing process. The surfaces shall receive an electrostatically applied thermoplastic, polyester powder coating (2.5 mil min. thickness) which shall be applied and baked to a hard mar-resistant finish in one of Kane's standard colors.
- ❑ White
- ❑ Black
- ❑ Dark Bronze
- ❑ Beige
- ❑ Gray
- ❑ Custom colors are available at additional cost with submission of color sample.

2.05 **Rods**
- ❑ Woven rod panels shall be fabricated from double crimped, low carbon, mild steel 1/4" [6.35] diameter rods, woven with 2" [50.8] open space.
- ❑ Woven rod panels shall be fabricated from double crimped, low carbon, mild steel 3/8" [9.52] diameter rods, woven with 2" [50.8] open space.

2.06 **Rod Attachment**
Woven rod panels shall be installed symmetrically into the slotted main frame. Slots shall be centered according to the rod pattern. Each rod shall penetrate into each slot where it contacts the main frame. Every other rod shall be welded into the slot at both ends where it penetrates the main frame.

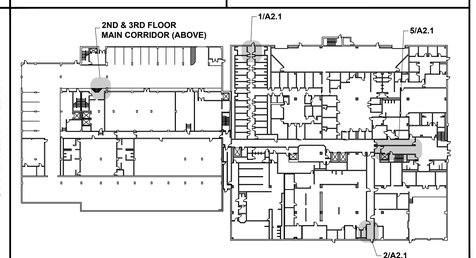
PART 3 EXECUTION
3.01 **Inspection**
Verify that openings fit allowable tolerances are plumb, level, provide a solid anchoring surface and comply with approved shop drawings.

3.02 **Installation**
A. Install in accordance with approved shop drawings and specifications.
B. Plumb and align faces in a single plane and erect barriers square and true, adequately anchored to structure.
C. After completion of installation, barriers shall be adjusted, in working order and clean.

PART 4 ENVIRONMENTAL REPORTING
4.01 **LEED Materials and Resources**
A Recycled Content: This product contributes toward satisfying Credit 4 under LEED.
B Regional Material: This product can contribute toward satisfying Credit 5 under LEED.

JAIL KEY PLAN

BASEMENT - SOUTH BUILDING	FIRST FLOOR - NORTH BUILDING



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12-10-18

ARCHITECTS
ENGINEERS
SURVEYORS
CP&Y
OFFICE 254-772-9272 ▪ 200 WEST STATE HWY 6
SUITE 620 ▪ WACO, TEXAS 76712

WILLIAMSON COUNTY
SOUTH - JAIL RENOVATION
306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

PROJECT NO: TALX1800911
DRAWN BY: JW
DESIGNED BY: DV
CHECKED BY: DV

SHEET TITLE
ENLARGED PLANS

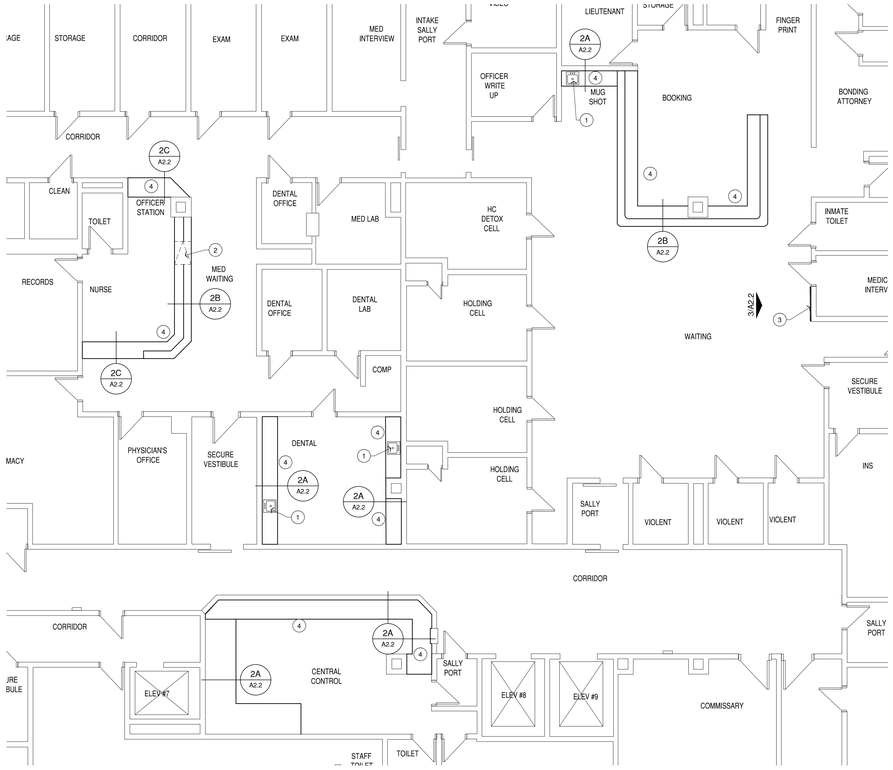
A2.1
SHEET

Williamson County, Texas

18/2019 12:01 PM

Bid 1901-286

Williamson County, Texas



1 REFERENCE PLAN

1/8" = 1'-0"

MILLWORK KEYED NOTES

1. REMOVE EXISTING SINK & RETAIN FOR REINSTALLATION. REPLACE SUPPLY LINES WITH NEW.
2. HINGED PANEL
3. ADD STAINLESS STEEL WALL PANEL BEHIND PHONES RE:3/A2.2
4. NEW STAINLESS STEEL COUNTERTOP & BACKSPLASH. PROVIDE BACKSPLASH ONLY IN AREA WHERE EXISTING.

MILLWORK GENERAL NOTES

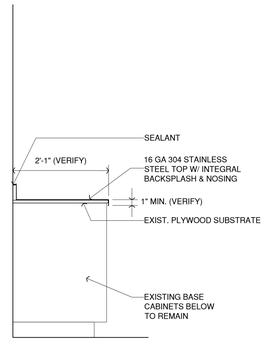
1. ALL DIMENSIONS SHOWN ARE FOR REFERENCE. FIELD VERIFICATION OF ALL SURFACES TO RECEIVE NEW STAINLESS STEEL IS REQUIRED.

2. ALL EXISTING CABINETS TO REMAIN. IN AREAS IDENTIFIED, INSTALL STAINLESS STEEL COUNTERTOP OVER EXISTING SURFACES.

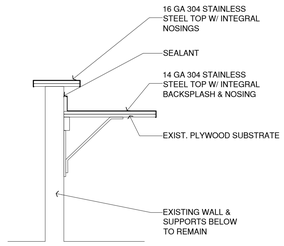
3. PROVIDE SEALANT @ ALL LOCATION WHERE COUNTERTOP/BACKSPLASH MEETS WALLS

4. CUT IN GROMMETS IN NEW COUNTERTOPS MATCHING EXISTING. COORDINATE FINAL LOCATIONS WITH OWNER.

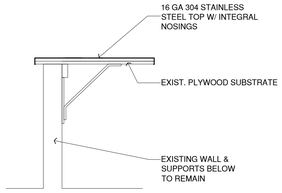
ALTERNATE NO. 4



SECTION 'A'



SECTION 'B'



SECTION 'C'

2 MILLWORK SECTIONS

3/4" =- 1'-0" NOT ALL CONDITIONS SHOWN

STAINLESS STEEL COUNTER TOP NOTES

1. TOPS: STAINLESS STEEL, TYPE 304, 16 GAUGE THICK, REINFORCED & SOUND DEADENED. OVERHANG AT DOOR/DRAWER FRONT & EXPOSED CABINET ENDS TO BE 1" MIN. VERIFY W/ EXISTING

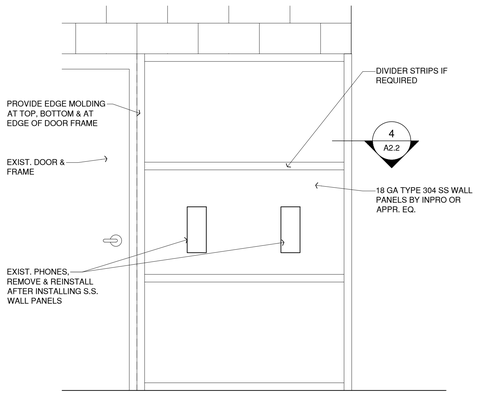
2. MATERIALS: ASTM A 240/ A240 M AUSTENITIC STAINLESS STEEL TYPE AS INDICATED.

3. STAINLESS STEEL FINISH: DIRECTIONAL SATIN FINISH NO. 4

4. SURFACE PREP: REMOVE TOOL & DIE MARKS AND STRETCH LINES, OR BLEND INTO FINISH.

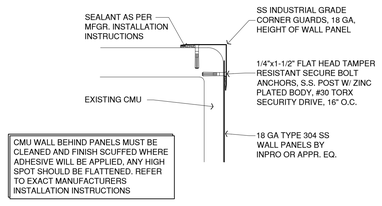
5. POLISHED FINISHES: GRIND & POLISH SURFACES TO PRODUCE UNIFORM FINISH, FREE OF CROSS SCRATCHES

   a. RUN GRAIN OF DIRECTIONAL FINISHES W/ LONG DIRECTION OF EACH PIECE
   b. WHEN POLISHING IS COMPLETED, PASSIVATE & RINSE SURFACES. REMOVE EMBEDDED FOREIGN MATTER AND LEAVE SURFACES CHEMICALLY CLEAN.



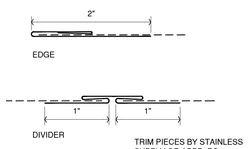
3 PHONE WALL ELEVATION

3/4" =- 1'-0"



4 CORNER DETAIL

3" =- 1'-0"

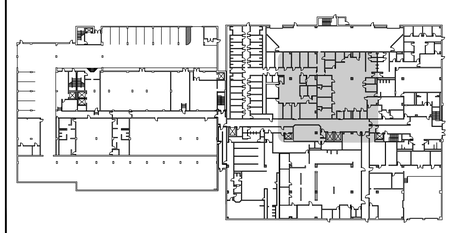


5 TRIM PROFILES

FULL SCALE

JAIL KEY PLAN

BASEMENT - SOUTH BUILDING	FIRST FLOOR - NORTH BUILDING



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SUITE 620 ■ WACO, TEXAS 76712

WILLIAMSON COUNTY
SOUTH - JAIL RENOVATION
306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

PROJECT NO:	TALX1800911
DRAWN BY:	JW
DESIGNED BY:	DV
CHECKED BY:	DV

SHEET TITLE
MILLWORK DETAILS

A2.2
SHEET

1/8/2019 12:01 PM

SECURITY DEVICE LEGEND				
DEVICE DESIGNATION	DESCRIPTION	MOUNTING/ HEIGHT	ROUGH-IN	ROUGH-IN DETAIL
IC1	HARDING MICROCOMM INTERCOM MODEL ICE-330-217-0000	WALL	REUSE EXISTING BACK BOX	1/QY4.0
IC2	HARDING MICROCOMM INTERCOM MODEL ICE-431-CUS-106	WALL	REUSE EXISTING BACK BOX	1/QY4.0
IR1	INTERCOM HEAD END EQUIPMENT	RACK	NO CONDUIT REQUIRED	2/QY4.0

SECURITY SYMBOLS	
XX	DEVICE SYMBOL
XX	EXISTING DEVICE TO REMAIN.
	HORIZONTAL CONDUIT RUN WITHIN WALLS OR ABOVE ACCESSIBLE CEILING.
O	VERTICAL CONDUIT RISER OR SLEEVE DOWN.
⊢	INDICATES WALL/DOOR FRAME MOUNTED DEVICE
#	KEYNOTE TAG

SECURITY ABBREVIATIONS	
A.F.F.	ABOVE FINISHED FLOOR
DPDT	DOUBLE POLE DOUBLE THROW
E.E.O.	EMERGENCY EXIT ONLY
NEC	NATIONAL ELECTRIC CODE
P.O.E.	POWER OVER ETHERNET
PTZ	PAN TILT ZOOM

GENERAL NOTES	
1	THE SCOPE OF WORK AS DEFINED IN THE QY SERIES DRAWINGS INCLUDING THE SYMBOLS LEGEND, GENERAL NOTES, NOTES TO SHEET, DETAILS, SPECIFICATIONS AND FLOOR PLANS IS TO PROVIDE COMPLETE TURNKEY SECURITY SYSTEMS.
2	ROUTE ALL WIRING THROUGH CONDUIT.
3	VERIFY THE EXACT MOUNTING LOCATION OF DEVICES WITH OWNER.
4	REFER TO THE DETAILS FOR ADDITIONAL INFORMATION ON THE INSTALLATION REQUIREMENTS FOR EACH DEVICE.
5	MOUNTING REQUIREMENTS SHALL BE AS INDICATED IN THE LEGEND AND DETAILS UNLESS OTHERWISE NOTED IN THE PLAN DRAWINGS. MOUNTING CONDITIONS IDENTIFIED ON THE PLAN DRAWINGS SHALL TAKE PRECEDENCE OVER THE LEGEND AND DETAIL DESCRIPTIONS.
6	MOUNTING HEIGHTS ARE TO THE CENTERLINE OF THE DEVICE/BACKBOX UNLESS NOTED OTHERWISE.
7	CONDUIT, BACKBOXES, JUNCTION BOXES, WIREWAYS AND WIRING SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NEC).
8	WHERE BACKBOXES ARE INSTALLED IN MASONRY WALLS, PROVIDE 2 1/2" DEEP MASONRY BOX SIZED TO MATCH DEVICE RING.
9	CONDUIT SHALL BE 3/4" UNLESS NOTED OTHERWISE
10	CONDUIT USED IN POTENTIALLY DAMP OR WET LOCATIONS, EXPOSED OUTDOORS OR IN HAZARDOUS AREAS SHALL BE INTERMEDIATE STEEL CONDUIT (IMC).
11	IN SLAB AND BURIED BELOW GRADE CONDUIT SHALL BE PVC.
12	CONDUIT OTHER THAN SPECIFIED TO BE IMC OR PVC SHALL BE ELECTRICAL METALLIC TUBING (EMT).
13	ROUTE CONDUIT ABOVE CEILINGS, BELOW FLOORS, WITHIN SERVICE CORRIDORS OR WITHIN WALLS; NO CONDUIT SHALL BE EXPOSED UNLESS APPROVED BY THE OWNER.
14	SEAL CONDUIT AND WIRING PENETRATIONS THROUGH FIRE RATED PARTITIONS AS REQUIRED BY CODE.
15	PROVIDE WATER TIGHT GLAND SEALING ASSEMBLIES WITH PRESSURE BUSHING AS REQUIRED FOR EXTERIOR PENETRATIONS.
16	PROVIDE PULL STRINGS IN ALL CONDUIT.
17	CONDUIT ROUTING SHOWN IS SCHEMATIC AND IS NOT INTENDED TO REPRESENT INSTALLED PATHS OR DISTANCES. THE INSTALLING CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH OTHER DISCIPLINES.
18	BACKBOXES SHALL BE FLUSH MOUNTED UNLESS NOTED OTHERWISE.
19	BACKBOXES MOUNTED WITHIN FIRE RATED PARTITIONS SHALL MEET THE FIRE RATING OF THE PARTITION AS REQUIRED BY CODE.
20	PROVIDE JUNCTION AND PULL BOXES AS REQUIRED BY NEC.
21	PROVIDE BLANK COVER PLATES FOR JUNCTION AND PULL BOXES.
22	JUNCTION AND PULL BOXES LOCATED IN EXPOSED ACCESSIBLE AREAS SHALL BE SECURED WITH TAMPER RESISTANT SCREWS AND SHALL NOT BE LABELED SECURITY.
23	BACKBOX, JUNCTION AND PULL BOXES IN EXTERIOR LOCATIONS SHALL BE WATER RESISTANT.
24	ROUTE WIRING WITHIN CONDUIT OR EXPOSED WITHIN WALLS, ABOVE ACCESSIBLE CEILINGS, BELOW ACCESSIBLE FLOORS, IN CABLE TRAYS OR IN RISER CLOSETS.
25	PROVIDE WIRING SUPPORTS FASTENED TO STRUCTURE IN ACCORDANCE FOR ALL WIRING NOT ROUTED IN CONDUIT OR CABLE TRAY.

PART 1 - GENERAL

1.01 SUMMARY

A. Project Description

1. Project consists of upgrading the Williamson County South Jail existing Security Voice Communication System (SVCS).
2. The work of this project will be as a subcontract to and under the control of the General Contractor (GC).

B. Scope of Work

1. The system consists of an existing Harding Instruments MicroComm DXL Series digital intercom system.
2. Provide new cable and intercom substations. Terminate cable to the existing intercom Harding Instruments head-in equipment.
3. Program equipment provided in the Work into the SVCS. Coordinate descriptions, master calls, and other information required for programming with the Owner.
4. Provide rack mount uninterruptable power supply to support the existing head in equipment during switch over to generator during building AC power fail conditions.
5. The SVCS shall utilize analog intercom stations.
6. Provide conduit and J-boxes for SVCS cable and devices.
7. Provide all system expansion programming and configuration required to deliver a complete and functional system.

1.02 SUBMITTALS

A. Submit for approval prefabrication submittals consisting of product data and shop drawings. Submit proposed deviations in writing for approval by the Security Consultant. Work shall be in accordance with approved submittals.

B. General

1. Provide submittal packages in electronic format.
2. The Owner and Security Consultant will review and approve submittal packages.
3. Submit packages to the GC for distribution to reviewers.
4. Submit a letter of transmittal with submittals identifying the name of the Project, Contractor's name, date submitted for review, and a list of items transmitted.
5. Partial Submittals shall not be accepted without prior written approval by the Security Consultant. The Security Consultant cannot verify the SVCS design without complete and thorough descriptions of components and installation details.
6. Details, block diagrams, legends, symbols, and other drawing elements prepared by the Security Consultant are not intended to be complete shop drawing designs, shall not be considered submittals, and shall not be accepted as submittals for the Work.
7. For the purposes of this Project, it is assumed that Submittals comply with and accurately reflect the requirements of the Contract Documents. The review and approval of the Contractor's Submittals shall not relieve the Contractor of the obligations to comply with the requirements of the Contract Documents.
8. No portion of the Work shall commence, nor shall equipment be ordered until the Security Consultant has approved the Submittals in writing.
9. There shall be no deviation from the approved Submittals unless otherwise stated in the Contract Documents or pre-approved in writing by the Security Consultant prior to the Work being performed.

C. Prefabrication Submittals

1. Prefabrication submittals shall consist of the Contractor's construction schedule, product data, shop drawings, and samples.
2. The A/E will provide AutoCad *.dwg files at the contractor's request and upon signing a standard release form to serve as backgrounds for shop drawing production. The contractor shall produce shop drawings in both *.dwg and *.pdf formats. Keep shop drawing files up to date with any as-constructed changes. The drawings shall be used as as-built documents in the close-out submittal. Provide product data in *.pdf format.
3. The purpose of the SVCS prefabrication submittals is to provide information as noted below. Provide documents necessary to comply with these requirements, demonstrate understanding and compliance with contract requirements, and provide details necessary for technicians to provide a consistent and compliant installation. Incorporate the Owner's naming and numbering conventions in the submittal drawings, equipment schedules, and other unique identifiers.
   a. Product and software descriptions necessary to explain the operation and implementation of custom products.
   b. Legend with specific description of each device symbol and wiring designation.
   c. Floor plans necessary to identify specific device locations, cable routes and quantities, cable types, riser locations, and references to installation details and diagrams.
   d. Riser diagrams necessary to clearly identify cable routes between floors, closets, rooms, buildings, and other areas that cannot be clearly identified on floor plans.
   e. Device termination details necessary to ensure consistent installation by personnel and subcontractors.
   f. Head end termination details and schedules necessary to ensure that installation personnel and subcontractors properly connect devices to the DCC, DCE, and PZE, equipment, and other head end equipment.
   g. Wire and cable types and samples necessary to verify cable types and confirm installed wire and cable.
   h. Labeling scheme and example for each type of wire, field device, field enclosure, junction box, etc. for approval.
   i. Drawings for custom equipment as required for the Security Consultant to review and approve the design for compliance with application and use for the product.
   j. Color, finish, and other samples necessary for review and approval of product options. Coordinate sample submittal requirements and provide samples as directed by the Owner.
   k. Product samples as requested for review and approval of product applications.
4. Construction Schedule
   a. Provide a detailed construction schedule in coordination with the GC that identifies milestones and completion dates. The schedule will be used by the Owner and Security Consultant to verify progress during construction.

D. Record Documentation

1. Provide 3 hard copies in a 3-ring binder and 3 electronic copies of record documentation on individual USB flash drives.
2. Record documentation shall consist of product data, as-built drawings (prefabrication drawings revised to reflect as-installed conditions), final programming records (e.g. programming and naming information, IP addresses, passwords, etc.) and operations and maintenance (O&M) manuals.
3. Record document shop drawings shall be in both AutoCad *.dwg and *.pdf formats.

1.03 QUALITY ASSURANCE

A. Contractor Qualifications

1. A single contractor shall provide the Work specified in this Specification.
2. The Contractor shall:
   a. Specialize in detention SVCS projects.
   b. Be a Harding Instruments authorized and fully trained distribution partner and provide an installation in compliance with the Harding Instruments guidelines for warranty.
   c. Maintain security contractor licenses for the State of Texas.
   d. Maintain a service facility and organization with staffing capable of providing comprehensive maintenance and service for the specified systems within a 100 mile radius of the Project.
   e. Maintain certifications, training and licenses as required to purchase, install, modify, and service the specified systems.
   f. Have a minimum of three years experience in the fabrication, assembly, and installation of systems of similar complexity as specified herein.
   g. Ensure compliance with and have a thorough understanding of local codes and contract conditions pertaining to the Work.
   h. Have local in-house engineering and project management capabilities consistent with the requirements of the Work. Provide a team managed by a project manager responsible for submittals, installation, scheduling, manpower, testing, record documents, subcontractors, etc.
   i. Provide the following spare parts inventory to the owner:
      1) 20 Harding MicroComm ICE-330-217-000 Intercom substations.
      2) 2 Intercom substations with privacy switch.
1. Submit the following information with the bid proposal:
   a. Proof of security contractor licenses from the Texas Department of Public Safety's Private Security Bureau for both the firm and the employees working on the site.
   b. Proof of on-site personnel manufacturer certifications, training, and licenses required to purchase, install, modify, and service the specified systems.
      1) Indicate compliance of proposed equipment and services by the word "Comply" following the associated paragraph number.
      2) Indicate an exception to the requirement by the word "Exception" following the associated paragraph number.
      3) Should the proposed equipment and services not entirely comply with the specified requirements, but achieve the intent; indicate the clarification to the requirement with the word "Clarification" followed by a compliance explanation.
      4) Paragraphs with no indication of compliance or acceptance shall be considered non-compliant.
      5) The Owner or Security Consultant may disqualify bid proposals that do not include a compliance statement.

B. Product Standards

1. All products shall be completely and seamlessly compatible with existing systems. Provide all programming, software and hardware necessary to make the new systems and components perform with the existing systems.At the time of installation provide the latest available version of software, firmware, and equipment.

1.02 DELIVERY, STORAGE, AND HANDLING

A. Ensure that products and equipment stored on the Project site and in the Contractor's facilities are protected from theft or damage. Stored equipment is the responsibility of the Contractor.

1.03 WARRANTY

A. Furnish a one-year warranty for the Work. The Warranty shall begin at Project Substantial Completion and after acceptance of the Project by the Security Consultant and Owner's Representiative.

1. Provide repair or replacement service during the warranty period. Perform repair and replacement work as follows:
   a. 8:00 am - 5:00 pm business days, excluding holidays, four (4) hour onsite response time. Service calls reported before noon shall require same day response unless coordinated otherwise with the Owner.
2. Warranty service and repair work shall be performed by personnel who have been trained, certified and are experienced in the operation and maintenance of the installed system(s)

PART 2 - PRODUCTS AND EXECUTION

2.01 Equipment – As scheduled on the Drawings

1. Verify specific equipment locations to provide the best fit and function. Verify locations with the Owner and Security Consultant as necessary.
2. Install equipment in accordance with manufacturer specifications.
3. Provide tamper resistant screws and fasteners for all field equipment.
4. Remove dirt, packaging, wiring scraps, and other debris from equipment, boxes, and cabinets at the end of each work day.

2.02 CONDUIT, BOXES, AND RACEWAYS

A. Provide conduit, junction boxes, pull boxes, wire troughs, and wire ways as required for the SVCS.

B. Provide raceway and boxes as specified in Section 260533 – Raceway and Boxes.

C. Provide 3/4" diameter minimum conduit. Do not exceed 60% conduit fill.

D. Install conduit, cable and wire parallel and square with building lines.

E. Install vertical wiring and main trunk/riser wiring in a raceway/conduit system. Adequately size riser boxes for the number of conductors traversing the respective box and the number of terminations required.

F. Provide conduit between power sources and SVCS low voltage power supplies.

G. Provide conduit between interface terminal cabinets and pull boxes and equipment.

H. Carefully install conduit, properly and adequately support conduit as required to comply with the requirements specified herein and as required by the NEC, and provide a neat, workmanlike installation. Support horizontal conduit runs with clamps, pipe straps, special brackets, or heavy iron ties secured to building structure.

I. Drill required inserts and saw cut or core drill openings required through concrete or masonry with tools specifically designed for this purpose. Keep annular space around penetrating item to a minimum

J. Swab out and remove burrs from conduit before pulling wires.

K. Lay out and install conduit runs to avoid proximity to hot pipes. Provide a minimum of three inches distance to such pipes, except where crossings are unavoidable. Where crossings are necessary, provide a minimum of two inches from the covering of the pipe.

L. Provide fire stops where conduits penetrate fire rated walls and floors. Reference Div. 26 for firestopping. Provide sound caulking at all non-fire rated penetrations.

M. The Owner shall approve a sample conduit installation for each exposed condition prior to installation. No exposed conduit shall be installed unless approved by the Owner.

2.03 LABELING

A. Label wires and cables as follows:

1. Mark wire and cable in common at both ends with computer generated labels fastened with transparent heat shrink material.
2. Markers to be readable from left to right or top to bottom. Locate labels near termination points.
3. Install labels when wire and cables are installed.
4. Labeling shall agree with record documentation.

2.04 PROJECT COMPLETION PROCESS

A. Program the SVCS as necessary.

B. Project Completion and Final Acceptance Testing

1. During Construction
   a. Conduct Pre-Functional Tests (PFT) of devices upon completion of termination with DCC's, DCE's, and PZE's.
   b. Test and document device connections to verify termination and operation in accordance with prefabrication submittals.
   c. Revise termination and operation information in the prefabrication submittals for inclusion in Record Documents.

C. Prior to final acceptance test, provide two sets of preliminary (draft) as-built drawings to the Owner' Rep and the Security Consultant. The drawings will be used to conduct the Final Acceptance test.

2.05 FINAL ACCEPTANCE TEST

A. Equipment shall be on and operational during testing procedures. Provide personnel, equipment, and supplies necessary to perform site testing. Provide a minimum of two employees familiar with the system for the Final Acceptance test. One employee shall monitor and verify intercom calls while the other will demonstrate the function of each device. Supply at least two two-way radios and spare batteries for use during the test. The Contractor shall make no adjustments, repairs, or modifications during the test without the permission of the Security Consultant. Make tools and ladders necessary to access equipment readily available.

B. Upon verification that punch list items are complete, the Security Consultant will issue a final acceptance letter.

ADD ALTERNATE NO. 3

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IMEG
security group

STATE OF TEXAS
CHARLES LEBLANC
111538
LICENSED PROFESSIONAL ENGINEER
12/18/2018
IMEG Corp.
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Bastrop, Texas 78602
Phone: 512-303-4421

WILLIAMSON COUNTY JAIL
ARCHITECTURAL PLANS
306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION
	11/07/2018	100% OWNER REVIEW
	12/18/2018	

PROJECT NO:
DRAWN BY: CD
DESIGNED BY: SW
CHECKED BY: CL

SHEET TITLE
SECURITY VOICE COMMUNICATIONS SYSTEM LEGEND

QY0.0
SHEET

ADD ALTERNATE NO. 3

1 FLOOR PLAN - FIRST FLOOR - SOUTH - SECURITY

1/8" = 1'-0"

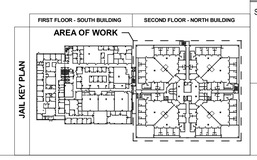
NORTH

NOTES TO SHEET

1. SVCS HEAD IN EQUIPMENT. EXISTING TO REMAIN.
2. PROVIDE NEW APC RACK MOUNT UPS MODEL - SMT1500RM2UNC.

FIRST FLOOR DEVICE COUNT		
DEVICE DESIGNATION	COUNT	FLOOR
IR1	1	FIRST FLOOR

JAIL KEY PLAN



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WILLIAMSON COUNTY JAIL
ARCHITECTURAL PLANS
306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DESCRIPTION	DATE
	100% OWNER REVIEW	12/18/2018
		11/07/2018

PROJECT NO:

DRAWN BY:	CD
DESIGNED BY:	SW
CHECKED BY:	CL

SHEET TITLE

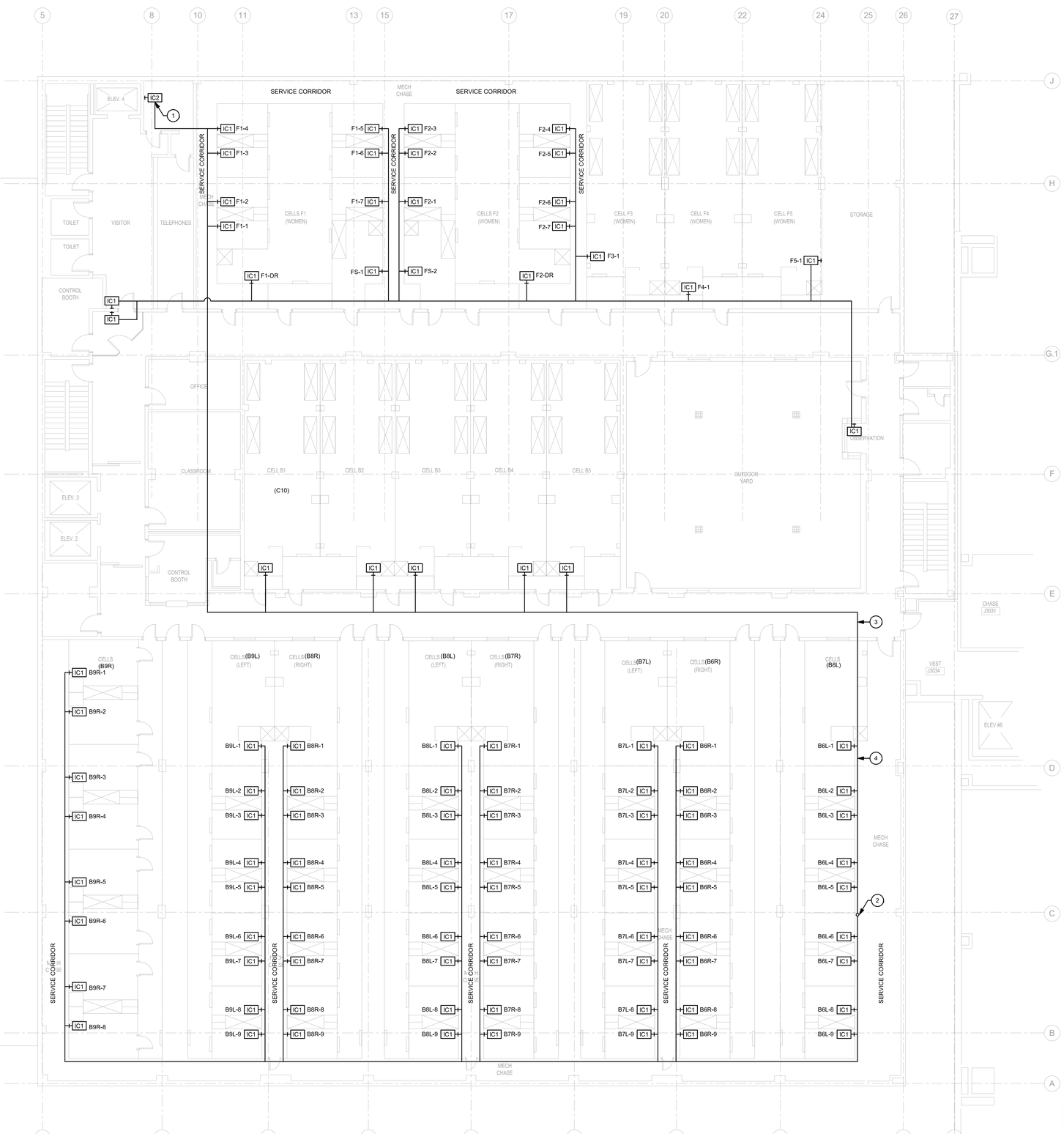
FLOOR PLAN - FIRST FLOOR - SOUTH - SECURITY

QY2.1

SHEET

ADD ALTERNATE NO. 3

FIRST FLOOR ROOF



1 FLOOR PLAN - SECOND FLOOR - SOUTH - SECURITY

1/8" = 1'-0"

NOTES TO SHEET

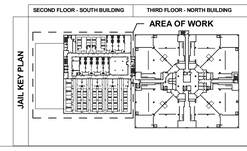
1. PROVIDE INTERCOM SUBSTATION WITH PRIVACY SWITCH.
2. PROVIDE 2 - 4" CONDUIT TO EQUIPMENT RACK ON FIRST FLOOR.
3. PROVIDE CONDUIT FOR SVCS DEVICE CABLE TO SVCS RISER LOCATED ON FIRST FLOOR. COORDINATE CONDUIT PATHWAY WITH OWNER.
4. UPON COMPLETION OF NEW CABLE AND INTERCOM STATIONS, REMOVE UNUSED EXISTING CABLES AND ASSOCIATED CONDUIT INFRASTRUCTURE.

SECOND FLOOR DEVICE COUNT

DEVICE DESIGNATION	COUNT	FLOOR
IC1	100	SECOND FLOOR
IC2	1	SECOND FLOOR

SECOND FLOOR - SOUTH BUILDING | THIRD FLOOR - NORTH BUILDING

JAIL KEY PLAN



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306 W. 4TH STREET
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	11/07/2018	100% OWNER REVIEW
	12/18/2018	

PROJECT NO:	
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CHECKED BY:	CL

SHEET TITLE

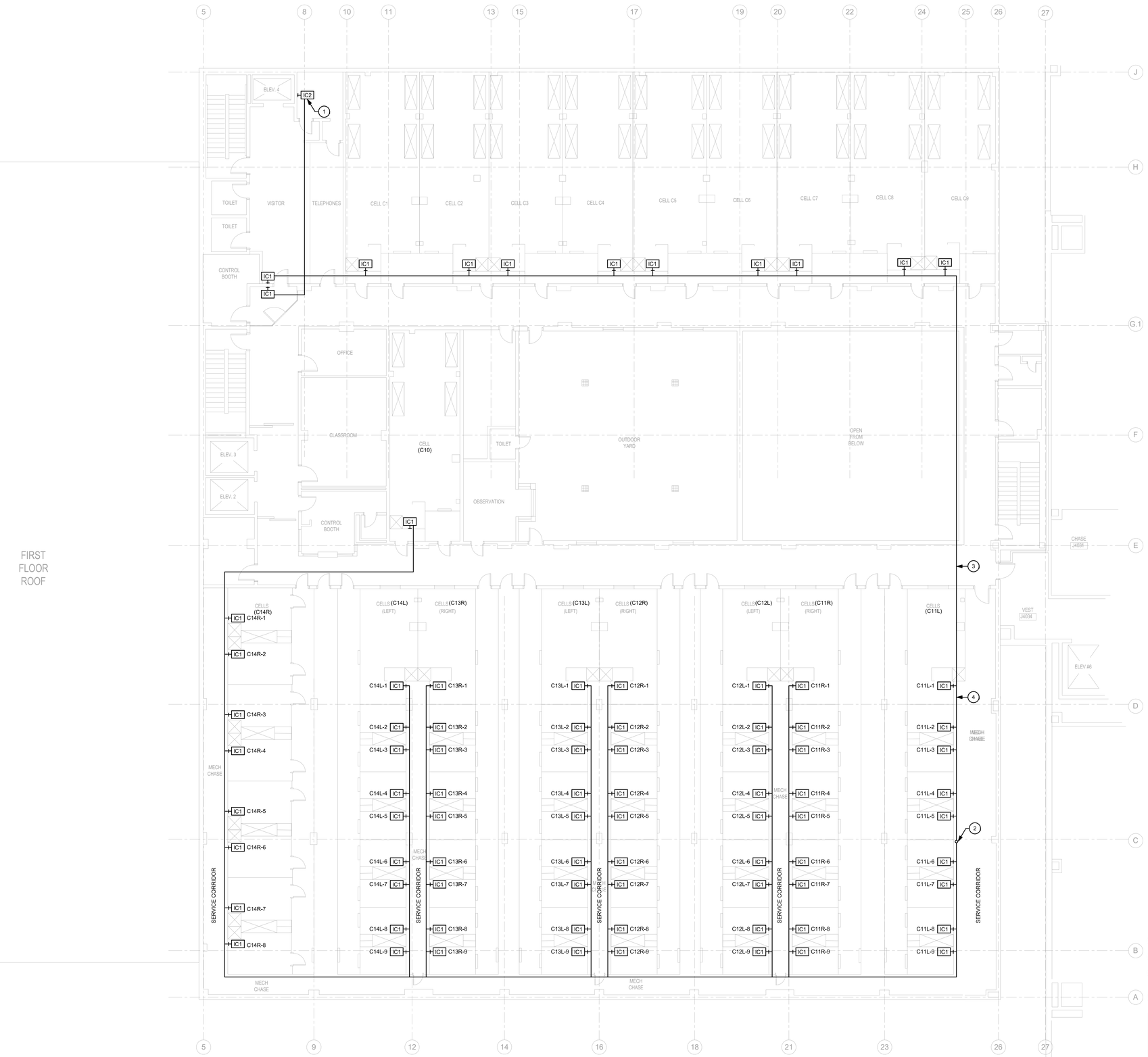
FLOOR PLAN - SECOND FLOOR - SOUTH - SECURITY

QY2.2

SHEET

ADD ALTERNATE NO. 3

FIRST FLOOR ROOF



1 FLOOR PLAN - THIRD FLOOR - SOUTH - SECURITY

1/8" = 1'-0"

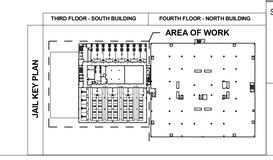
NORTH

NOTES TO SHEET

1. PROVIDE INTERCOM SUBSTATION WITH PRIVACY SWITCH.
2. PROVIDE 1 - 4" CONDUIT TO SECOND FLOOR.
3. PROVIDE CONDUIT FOR SVCS DEVICE CABLE TO SVCS RISER LOCATED ON FIRST FLOOR. COORDINATE CONDUIT PATHWAY WITH OWNER.
4. UPON COMPLETION OF NEW CABLE AND INTERCOM STATIONS, REMOVE UNUSED EXISTING CABLES AND ASSOCIATED CONDUIT INFRASTRUCTURE.

THIRD FLOOR DEVICE COUNT

DEVICE DESIGNATION	COUNT	FLOOR
IC1	83	THIRD FLOOR
IC2	1	THIRD FLOOR



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	100% OWNER REVIEW	12/18/2018
		11/07/2018

PROJECT NO:

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DESIGNED BY:	SW
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ARCHITECTURAL PLANS
306 W. 4TH STREET
GEORGETOWN, TX 78626

SHEET TITLE

FLOOR PLAN - THIRD FLOOR - SOUTH - SECURITY

QY2.3

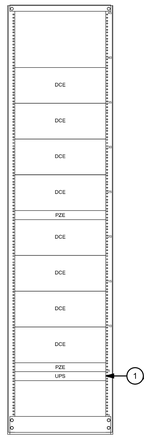
SHEET

ADD ALTERNATE NO. 3

DETAILS NOTES:

1. EXISTING WIREMOLD BOX WITH INTERCOM WIRING.
2. EXISTING EMT CONDUIT.
3. PROVIDE NEW EMT CONDUIT AS REQUIRED. 3/4" MINUMUM.

1	INTERCOM BACKBOX ROUGH-IN DETAIL	N.T.S.



GENERAL NOTES:

1. CLEAN EXISTING EQUIPMENT AND RACK. PROVIDE CABLE MANAGEMENT AS NECESSARY.

DETAILS NOTES:

1. PROVIDE NEW APC RACK MOUNT UPS MODEL - SMT1500RM2UNC.

2	EXISTING SECURITY VOICE COMMUNICATIONS SYSTEM EQUIPMENT RACK	N.T.S.

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	11/07/2018	OWNER REVIEW
	12/18/2018	100%

PROJECT NO:

DRAWN BY: CD

DESIGNED BY: SW

CHECKED BY: CL

SHEET TITLE

SECURITY VOICE COMMUNICATIONS SYSTEM DETAILS

QY4.0

SHEET

Bid 1901-286
Williamson County, Texas

WILLIAMSON COUNTY
JAIL RENOVATIONS

306 W. 4TH ST.
GEORGETOWN, TX 78626

DRAWING LIST

BASE BID

C1.0 - COVER SHEET
A1.1 - REFERENCE PLANS
A2.0 - CEILING PLANS - 2ND & 3RD FLOORS - SOUTH JAIL
M1.1 - MECHANICAL PLAN 1ST FLOOR - SOUTH JAIL
M1.2 - MECHANICAL PLAN 2ND FLOOR - SOUTH JAIL
M1.3 - MECHANICAL PLAN 3RD FLOOR - SOUTH JAIL
M2.1 - MECHANICAL SCHEDULES AND DETAILS
E1.2 - LIGHTING PLAN 1ST & 2ND FLOOR - SOUTH JAIL
P1.2 - PLUMBING WATER PLAN 2ND FLOOR - NORTH JAIL
P1.3 - PLUMBING WATER PLAN 3RD FLOOR - NORTH JAIL
P1.4 - PLUMBING WATER PLAN 4TH FLOOR NORTH JAIL
P2.2 - PLUMBING SANITARY PLAN 2ND FLOOR - SOUTH JAIL
P3.1 - PLUMBING SCHEMATIC PIPING DIAGRAMS

ALTERNATE NO. 1

A2.1 - MAN TRAPS - ENLARGED PLANS - NORTH JAIL
E3.1 - MAN TRAPS & SPECIAL SYSTEMS 1ST FLOOR- NORTH JAIL
E3.2 - MAN TRAPS & SPECIAL SYSTEMS 2ND FLOOR - SOUTH JAIL

ALTERNATE NO. 2

E1.1 - LIGHTING - LOADING DOCK & SALLY PORT 1ST FLOOR - NORTH JAIL

ALTERNATE NO. 3

QY0.0 - SECURITY VOICE COMMUNICATIONS SYSTEM LEGEND
QY2.1 - FLOOR PLAN - 1ST FLOOR SOUTH SECURITY
QY2.2 - FLOOR PLAN - 2ND FLOOR SOUTH SECURITY
QY2.3 - FLOOR PLAN - 3RD FLOOR SOUTH SECURITY
QY4.0 - SECURITY VOICE COMMUNICATIONS SYSTEM DETAILS

ALTERNATE NO. 4

A2.2 - STAINLESS STEEL MILLWORK - NORTH JAIL

LOCAL MAP

PROJECT SITE

PRIME A/E & MEP FIRM

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ARCHITECTUAL FIRM

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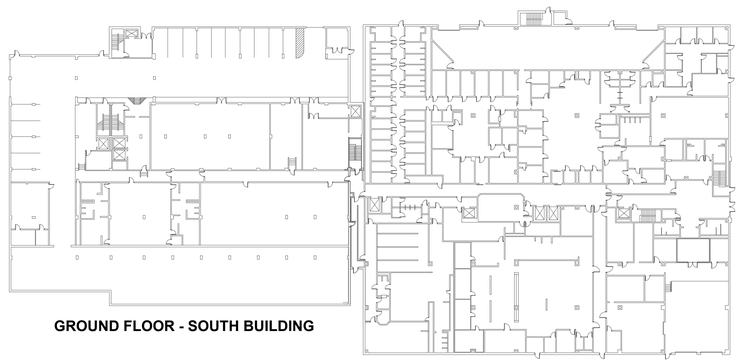
SECURITY CONSULTANT

IMEG security group

KEY PLAN



GROUND FLOOR - SOUTH BUILDING

1ST FLOOR - NORTH BUILDING

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WILLIAMSON COUNTY
JAIL RENOVATIONS
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MARK	DATE	DESCRIPTION

PROJECT NO:	1066.3
DRAWN BY:	SR
DESIGNED BY:	OV
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SHEET TITLE
COVER SHEET

C1.0
SHEET

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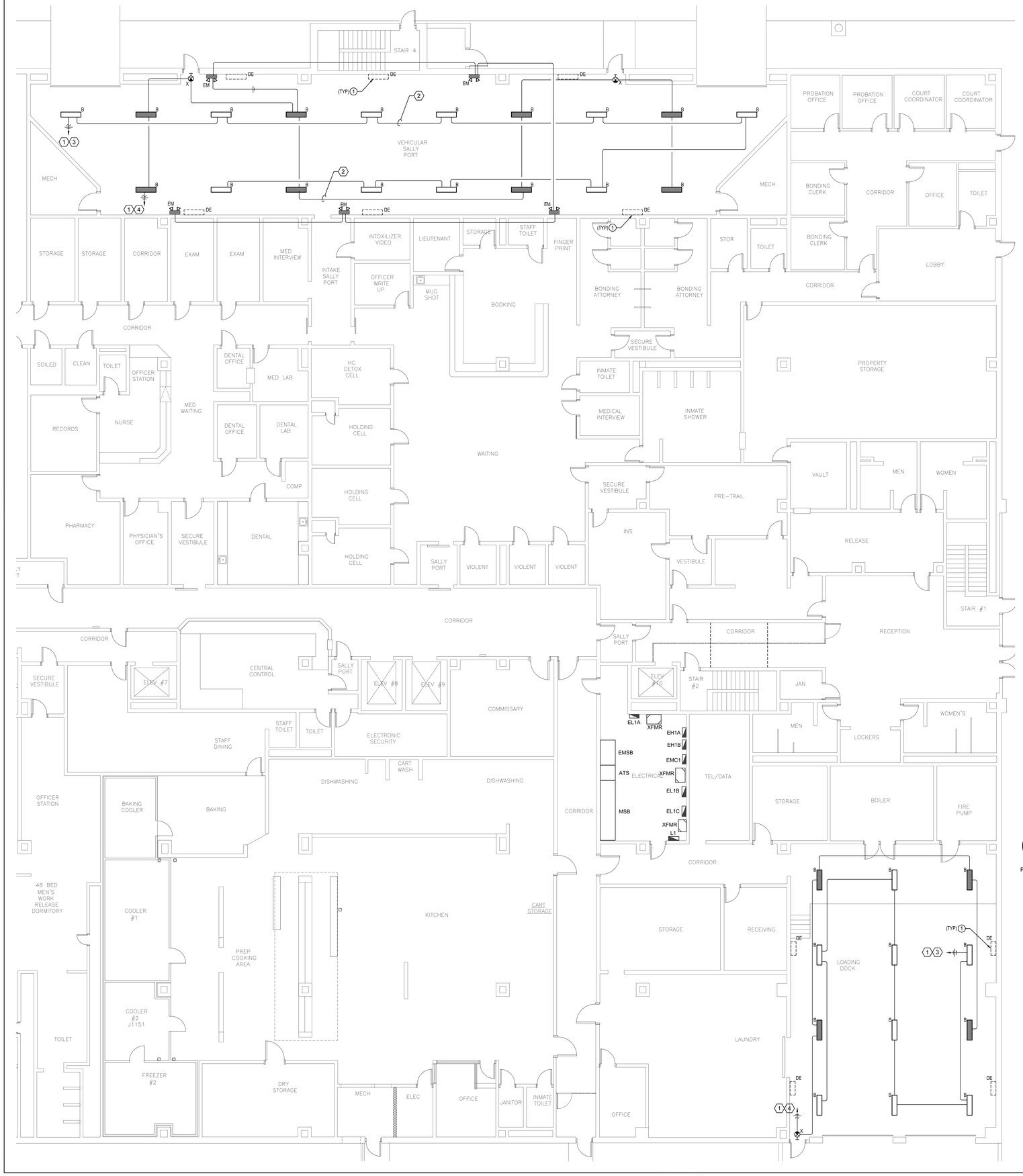

ELECTRICAL DEMO NOTES:

1. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURES IN SALLY PORT AND LOADING DOCK AREA. RETAIN CIRCUIT FOR RECONNECTION TO NEW FIXTURES AS SHOWN ON THIS SHEET.

SYMBOL LETTERING:
DE - DEMOLISH
LR - LIFT DURING CEILING REPLACEMENT & RE-INSTALL
ES - EXISTING TO STAY
RE - RELOCATED

GENERAL NOTE:

A. WORK INDICATED ON PLANS REFLECTS ASSUMPTIONS CONCERNING EXISTING CONDITIONS BASED ON BEST AVAILABLE INFORMATION. NO ASSURANCE IS GIVEN THAT THESE ASSUMPTIONS ACCURATELY REFLECT ACTUAL JOB SITE CONDITIONS. BASE BIDS ON MODIFYING EXISTING CONDITIONS AS REQUIRED TO COMPLETE WORK AS INDICATED ON PLANS.

B. TYPE 'EM' FIXTURES WITH EMERGENCY BATTERY PACKS SHALL HAVE 277V 'HOT LEG' TO SENSE LOSS OF POWER, INTERIM GENERATOR START-UP.

PLAN KEYED NOTES:

1. CONNECT FIXTURES TO EXISTING LIGHTING CIRCUIT AVAILABLE IN SPACE. (TYPICAL ALL FIXTURES IN THIS AREA).
2. FIXTURES REQUIRE SURFACE MOUNTED, 3/4" EMT CONDUIT FOR ELECTRICAL RUNS. (TYP)
3. CONNECT NEW FIXTURES TO EXISTING 277V/20A LIGHTING CIRCUIT IN PANEL 'EH1'.
4. CONNECT NEW FIXTURES TO EXISTING, 277V/20A 'EMERGENCY' LIGHTING CIRCUIT.

PLAN NORTH

1 LIGHTING PLAN 1ST FLOOR - NORTH JAIL

SCALE: 1/8"=1'0"

0 4 8 12 16 20
GRAPHIC SCALE

ALTERNATE NO. 2

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CONSTRUCTION DOCS 12.12.18

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WILLIAMSON COUNTY
JAIL RENOVATIONS
306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

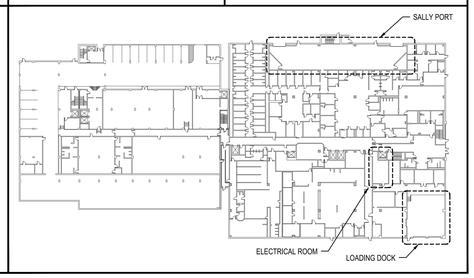
PROJECT NO:	1066.3
DRAWN BY:	PB
DESIGNED BY:	OV
CHECKED BY:	TA

SHEET TITLE
ELECTRICAL LIGHTING PLAN 1ST FLOOR

E1.1
SHEET

JAIL KEY PLAN

BASEMENT - SOUTH BUILDING	1ST FLOOR - NORTH BUILDING



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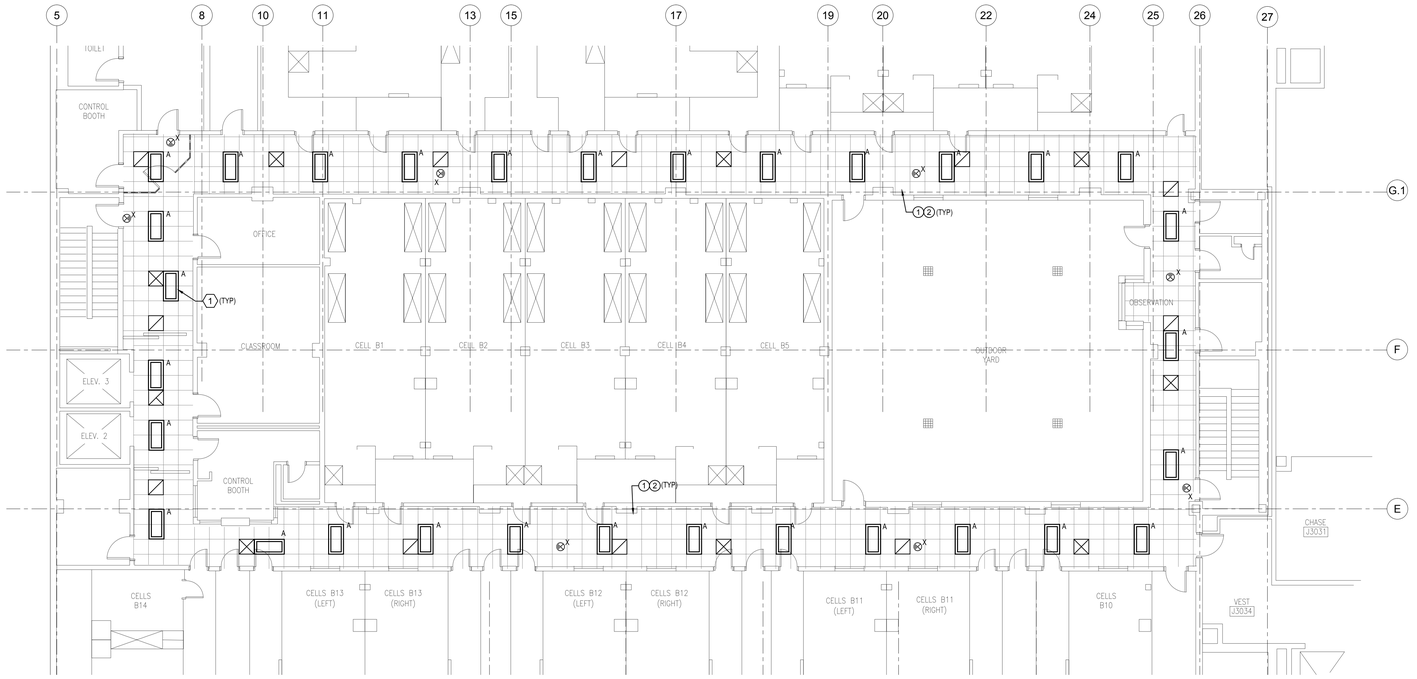
Williamson County, Texas

BASE BID



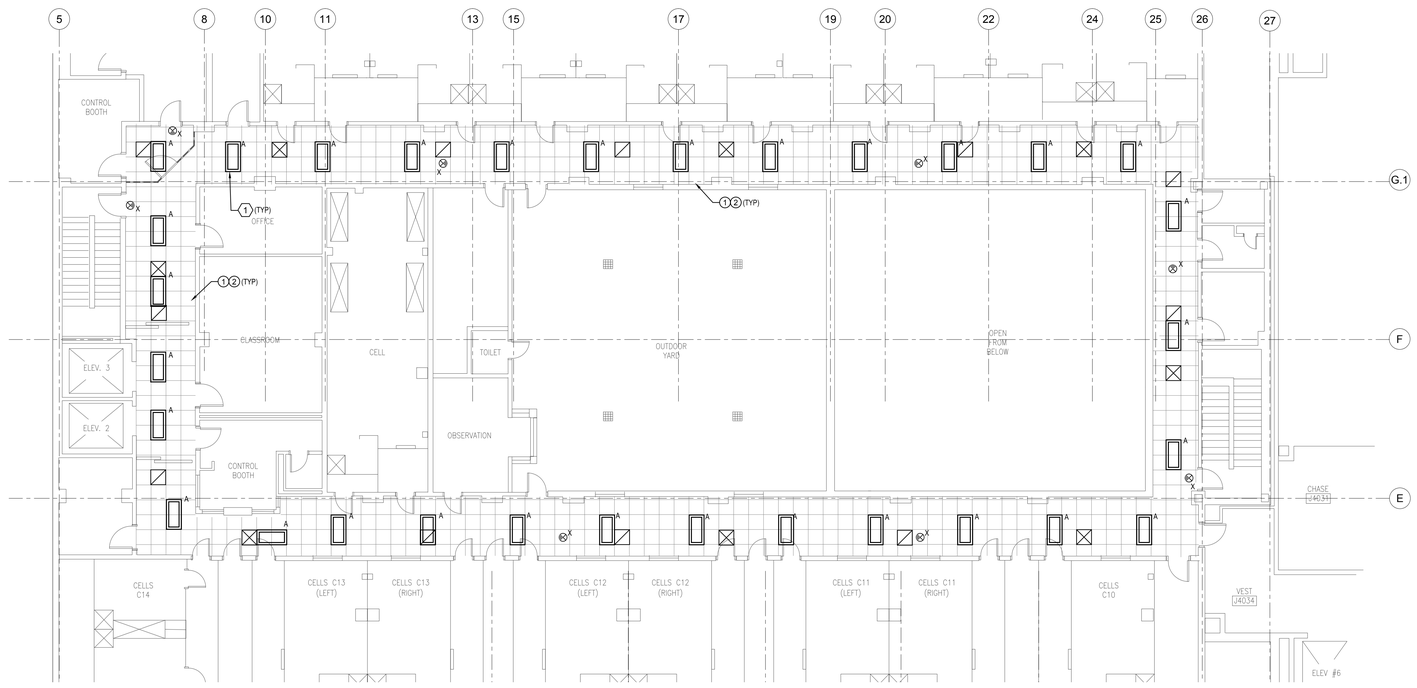
PLAN NORTH

1 LIGHTING PLAN - 2ND FLOOR

SCALE: 1/8"=1'0"

0 4 8 12 16 20

GRAPHIC SCALE



PLAN NORTH

2 LIGHTING PLAN - 3RD FLOOR

SCALE: 1/8"=1'0"

0 4 8 12 16 20

GRAPHIC SCALE

ELECTRICAL DEMO NOTES:

1. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURES IN MAIN CORRIDOR. RETAIN CIRCUIT FOR RECONNECTION TO NEW FIXTURES AS SHOWN ON THIS SHEET.
2. REMOVE, RETAIN AND RE-INSTALL EXISTING CAMERAS, SPEAKERS, FIRE ALARM DEVICES IN NEW CEILING GRID.

GENERAL NOTE:

A. WORK INDICATED ON PLANS REFLECTS ASSUMPTIONS CONCERNING EXISTING CONDITIONS BASED ON BEST AVAILABLE INFORMATION. NO ASSURANCE IS GIVEN THAT THESE ASSUMPTIONS ACCURATELY REFLECT ACTUAL JOB SITE CONDITIONS. BASE BIDS ON MODIFYING EXISTING CONDITIONS AS REQUIRED TO COMPLETE WORK AS INDICATED ON PLANS.

PLAN KEYED NOTES:

1. CONNECT NEW FIXTURES TO EXISTING 277V LIGHTING CIRCUIT AVAILABLE IN SPACE. (TYPICAL ALL FIXTURES IN THIS AREA).

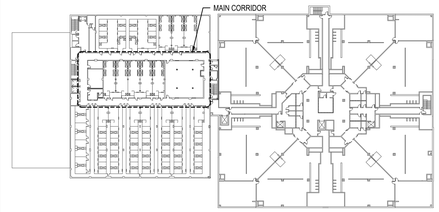
LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER & CATALOG #	LAMP TYPE	LAMP WATTS	VOLTAGE	MOUNTING	DESCRIPTION
A	LITHONIA EPANL 2X4 4000LMHE 80CRI 40K MIN10 ZT MVOLT	LED	38	MVOLT	RECESSED CEILING	2X4 ACRYLIC LED, LIGHT PANEL
B	KENALL MLHA12-48-F-MW-CP-1-90L35K-DCC-1-DV	LED	100	MVOLT	SURFACE CEILING	4'-0" HIGH-BAY FIXTURE
EM	LITHONIA LHQM LED R	LED	5	MVOLT	SURFACE CEILING	DUAL-HEAD EMERGENCY LIGHTS. 90 MIN BATTERY REQUIRED.
X	LITHONIA LRP-S-W-X-RW-120/277	LED	5	MVOLT	SURFACE CEILING	LED EXIT SIGN, NO PACK BATTERY REQUIRED

NOTE:
1. ALL CEILING LIGHTS ARE TO INCLUDE FLANGE KIT COMPATIBLE WITH CEILING TYPE.

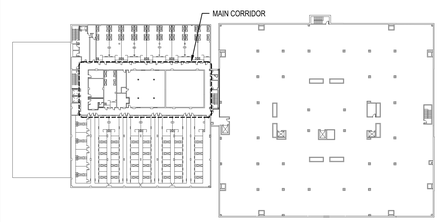
JAIL KEY PLAN

2ND FLOOR - SOUTH BUILDING | **3RD FLOOR - NORTH BUILDING**



JAIL KEY PLAN

3RD FLOOR - SOUTH BUILDING | **4TH FLOOR - NORTH BUILDING**



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CONSTRUCTION DOCS 12.12.18

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WILLIAMSON COUNTY JAIL RENOVATIONS

306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

PROJECT NO:	1066.3
DRAWN BY:	PB
DESIGNED BY:	OV
CHECKED BY:	TA

SHEET TITLE
ELECTRICAL
LIGHTING PLAN
2ND & 3RD FLR

E1.2

SHEET

p. 148

1/8/2019 12:01 PM

Bid 1901-286

Williamson County, Texas

ALTERNATE NO. 1

GENERAL NOTE:

A. WORK INDICATED ON PLANS REFLECTS ASSUMPTIONS CONCERNING EXISTING CONDITIONS BASED ON BEST AVAILABLE INFORMATION. NO ASSURANCE IS GIVEN THAT THESE ASSUMPTIONS ACCURATELY REFLECT ACTUAL JOB SITE CONDITIONS. BASE BIDS ON MODIFYING EXISTING CONDITIONS AS REQUIRED TO COMPLETE WORK AS INDICATED ON PLANS.

KEYED NOTES :

1. J-BOX ABOVE CEILING FOR PROVIDING POWER TO 120V AUTOMATIC DOOR LOCKS. ROUTE IN 3/4" CONDUIT BACK TO NEXT AVAILABLE 120V/20A CIRCUIT IN PANEL 'EL' LOCATED IN MAIN ELECTRICAL ROOM ON FIRST FLOOR OF NORTH BUILDING.

PLAN NORTH

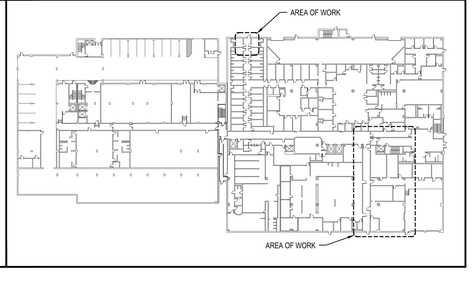
1 ELECTRICAL MAN TRAPS - 1ST FLOOR - NORTH

SCALE: 1/8"=1'0"

GRAPHIC SCALE 0 4 8 12 16 20

JAIL KEY PLAN

BASEMENT - SOUTH BUILDING | 1ST FLOOR - NORTH BUILDING



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MARK	DATE	DESCRIPTION

PROJECT NO:	1066.3
DRAWN BY:	PB
DESIGNED BY:	OV
CHECKED BY:	TA

SHEET TITLE
ELECTRICAL
MAN TRAPS
1ST FLOOR

E3.1
SHEET

WILLIAMSON COUNTY
JAIL RENOVATIONS
306 W. 4TH STREET
GEORGETOWN, TX 78626

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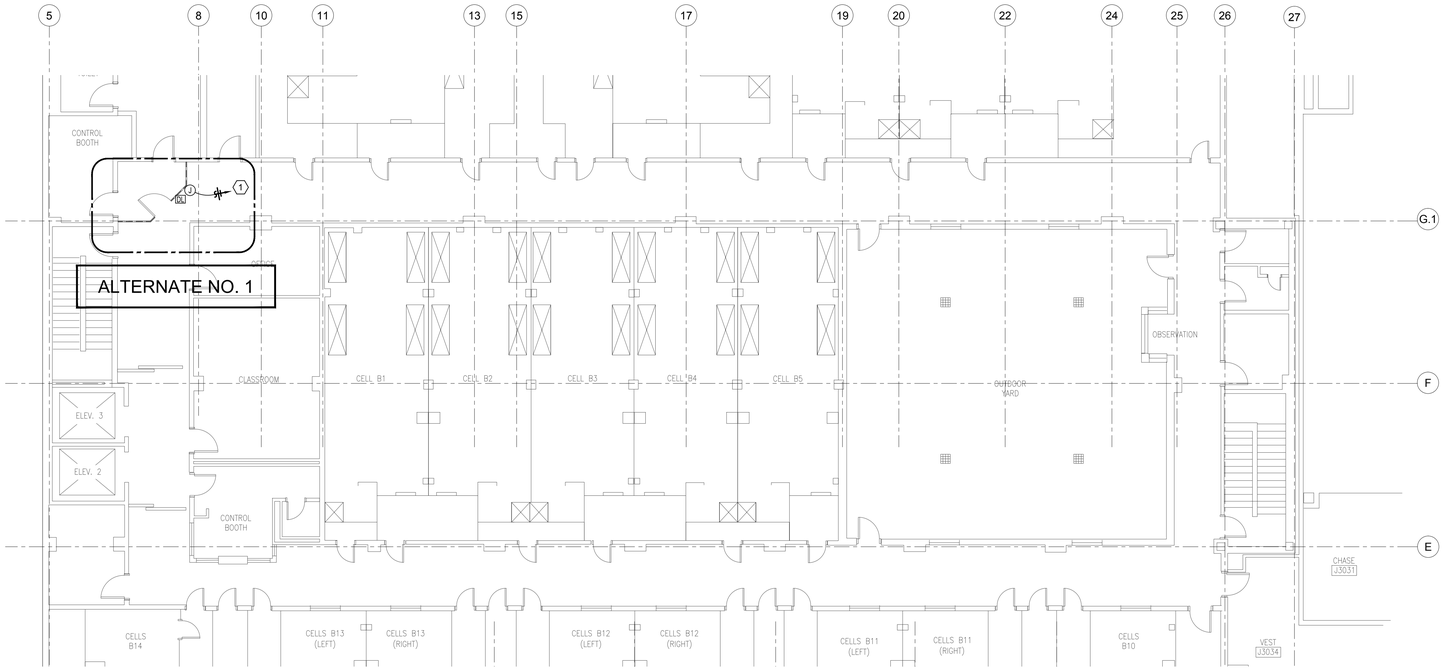
ALTERNATE NO. 1
(MAN TRAP WORK ONLY)



PLAN NORTH

1 ELECTRICAL MAN TRAPS - 2ND FLOOR - SOUTH
SCALE: 1/8"=1'0"

0 4 8 12 16 20
GRAPHIC SCALE

GENERAL NOTE:

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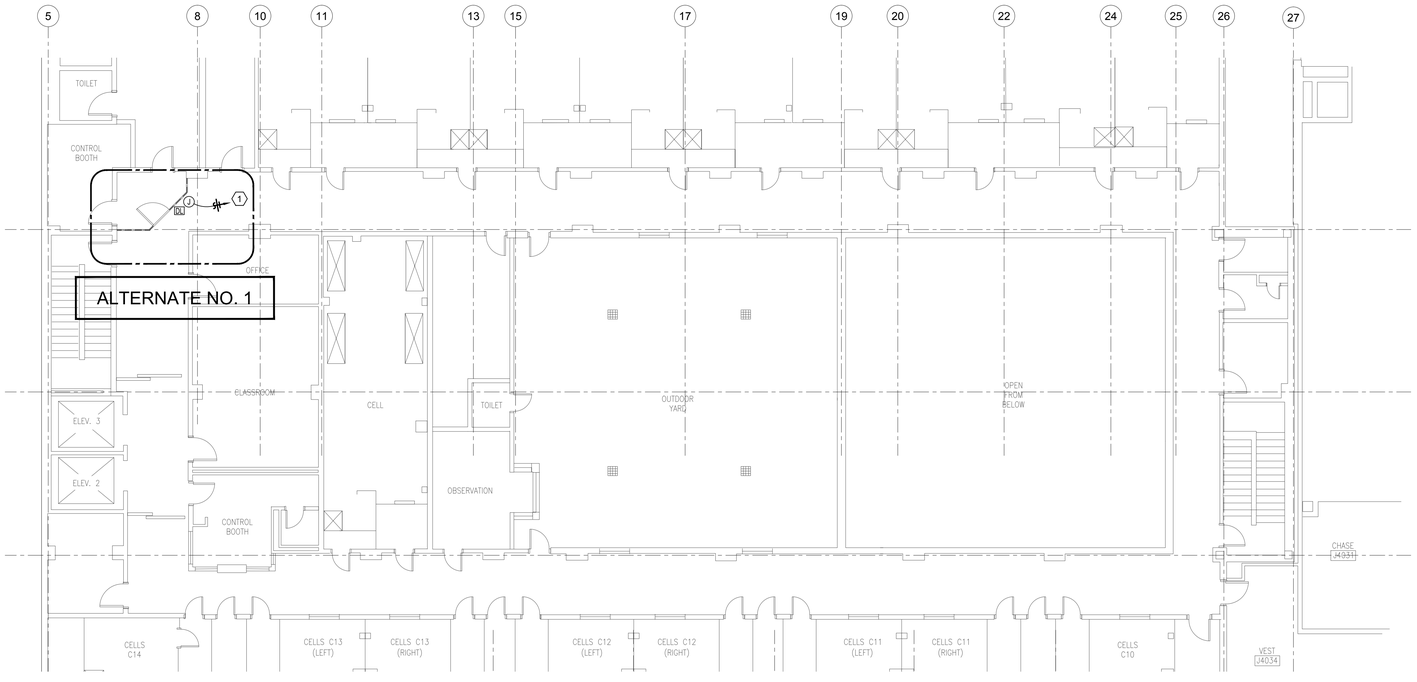
KEYED NOTES :

(1) J-BOX ABOVE CEILING FOR PROVIDING POWER TO 120V AUTOMATIC DOOR LOCKS. ROUTE IN 3/4" CONDUIT BACK TO NEXT AVAILABLE 120V/20A CIRCUIT IN PANEL 'EL' LOCATED IN MAIN ELECTRICAL ROOM ON FIRST FLOOR OF SOUTH BUILDING.

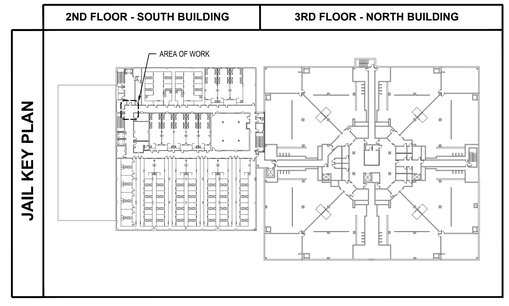


PLAN NORTH

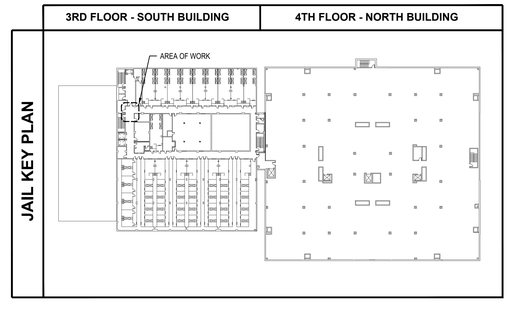
1 ELECTRICAL MAN TRAPS - 3RD FLOOR - SOUTH
SCALE: 1/8"=1'0"

0 4 8 12 16 20
GRAPHIC SCALE

JAIL KEY PLAN



JAIL KEY PLAN



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SUITE 620 ■ WACO, TEXAS 76712

WILLIAMSON COUNTY JAIL RENOVATIONS
306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

PROJECT NO:	1066.3
DRAWN BY:	SR
DESIGNED BY:	SR
CHECKED BY:	TA

SHEET TITLE
MAN TRAPS
ELECTRICAL
2ND & 3RD FLOOR

E3.2
SHEET

18/2019 12:01 PM

BASE BID

KEYED NOTES:

1. EXISTING FAN COIL (FCU-2-J1) UNIT TO BE RELOCATED.
2. NEW LOCATION OF FAN COIL UNIT. PROVIDE NEW INSULATED SUPPLY AND RETURN DUCTWORK AS SHOWN. CHILLED/HEATING (SCH. 40 STEEL) WATER PIPING, CONDENSATE DRAIN AND RELOCATE CONROLS AND ELECTRICAL WIRING AS REQUIRED.
3. REINSULATE CONDENSTATE DRAIN LINE WITH A MINIMUM OF 3/4" ARMAFLEX INSULATION.
4. REMOVE EXISTING AND REINSULATE ALL CHILLED WATER SUPPLY AND RETURN PIPING ABOVE CEILING INCLUDING ALL CHILLED WATER RISERS.
5. REMOVE AND REPLACE EXISTING CEILING TILE AS REQUIRED FOR REINSULATION OF PIPING. PROVIDE MATCHING TILE (OR AS CLOSE AS POSSIBLE) FOR ANY BROKEN TILE AND REPAIR/REPLACE ANY DAMAGED CEILING GRID. REUSE ALL AIR DEVICES. PROTECT AIR DEVICE FROM DAMAGE DURING CONSTRUCTION.
6. EXISTING CHILLED WATER PIPING AND INSULATION TO REMAIN. CONNECT NEW INSULATION TO EXISTING WITH COMPLETE VAPOR BARRIER.
7. INSULATE CHS & CHR PIPING RISER TO EXISTING FLOOR PENETRATIONS. CONNECT NEW INSULATION TO EXISTING WITH COMPLETE VAPOR BARRIER.
8. REMOVE FLOOR PENTRATION SEALANT AND INSTALL CONTINUOUS PIPING INSULATION FROM FLOOR TO FLOOR. PROVIDE NEW FIRESTOPPING AT EXISTING PIPE PENETRATIONS.

MECHANICAL LEGEND

- NEW SUPPLY DEVICE
- NEW RETURN AIR DEVICE
- NEW EXHAUST GRILLE
- DIFFUSER TYPE
- A | 180 — DIFFUSER CFM
- 8"ø — DIFFUSER NECK SIZE
- EXISTING FAN COIL UNIT TO BE RELOCATED
- EXISTING RELOCATED FAN COIL UNIT
- EXISTING FAN COIL UNIT TO REMAIN
- POINT OF CONNECTION NEW TO EXISTING
- EXISTING CHILLED WATER PIPING TO BE REINSULATED
- EXISTING PIPING TO REMAIN

1 MECHANICAL PLAN FIRST FLOOR

SCALE: 1/8"=1'0"

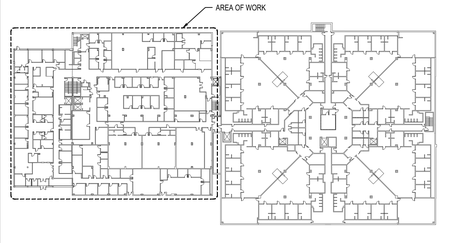
NORTH

0 4 8 12 16 20

GRAPHIC SCALE

1ST FLOOR - SOUTH BUILDING | 2ND FLOOR - NORTH BUILDING

JAIL KEY PLAN



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CONSTRUCTION DOCS 12.12.18

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WILLIAMSON COUNTY
JAIL RENOVATIONS
306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

PROJECT NO:	1066.3
DRAWN BY:	SR
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SHEET TITLE
SOUTHSIDE
MECH PLAN
FIRST FLOOR

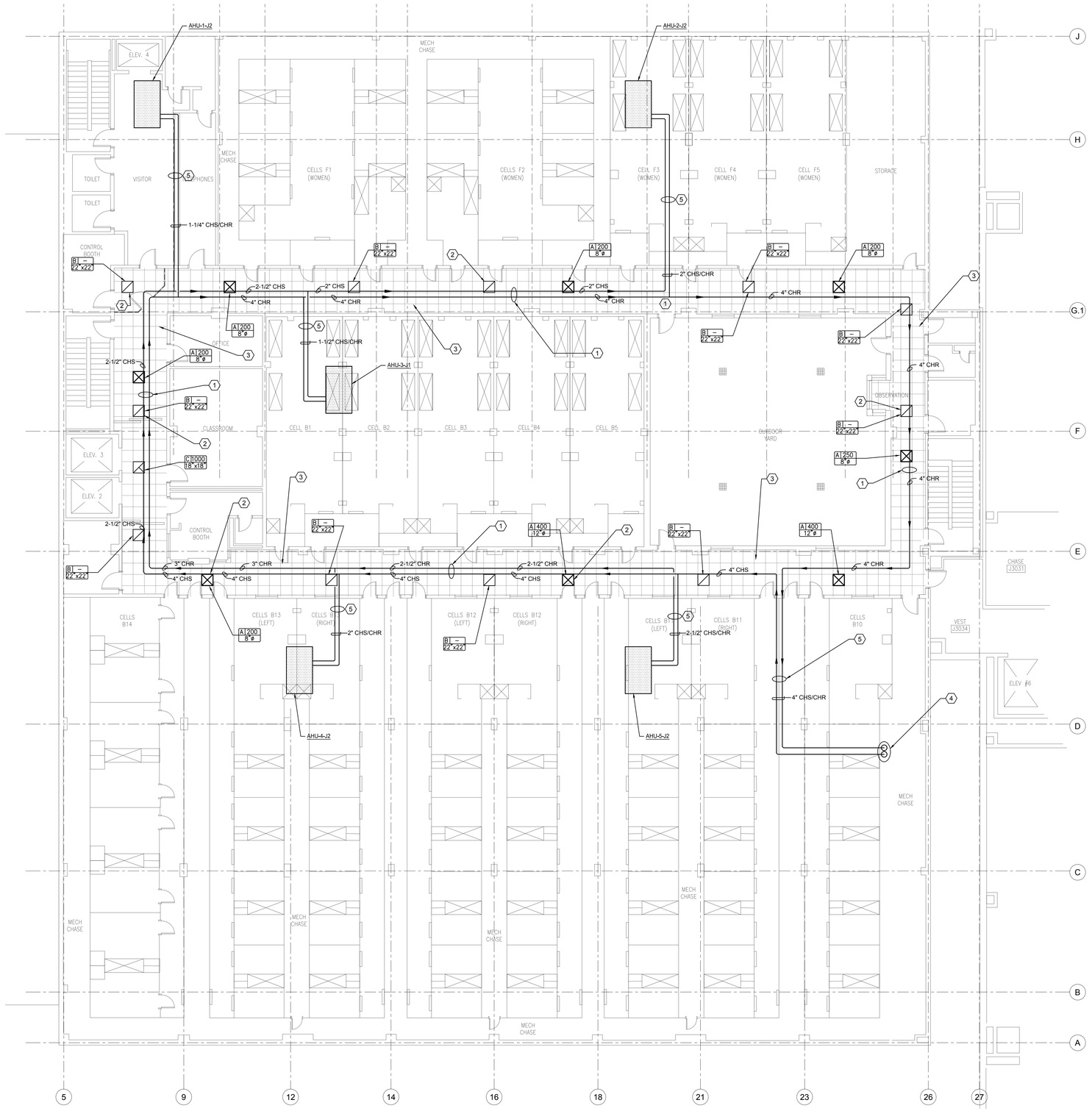
M1.1
SHEET

Williamson County, Texas

Bid 1901-286

Williamson County, Texas

BASE BID



KEYED NOTES:

1. REINSULATE ALL CHILLED WATER SUPPLY AND RETURN PIPING ASSOCIATED RISERS.
2. REPLACE ALL SUPPLY, RETURN AND EXHAUST AIR DEVICES IN THE CORRIDOR CEILING. REFER TO AIR DEVICE SCHEDULE ON SHEET M2.1 AND ARCH PLAN A1.2. AIR BALANCE EACH AIR DEVICE TO CFM SHOWN.
3. REFER TO ARCH PLAN A1.2 FOR CEILING PLAN.
4. INSULATE CHS & CHR PIPING RISER TO EXISTING FLOOR PENETRATIONS. CONNECT NEW INSULATION TO EXISTING WITH COMPLETE VAPOR BARRIER.
5. CHILLED WATER SUPPLY AND RETURN PIPES ARE ACCESSIBLE ABOVE CELLS.

MECHANICAL LEGEND

⊠	NEW SUPPLY DEVICE
⊘	NEW RETURN AIR DEVICE
⊘	NEW EXHAUST GRILLE
	DIFFUSER TYPE
A | 180 / 8"ø	DIFFUSER CFM / DIFFUSER NECK SIZE
	EXISTING FAN COIL UNIT TO REMAIN
	POINT OF CONNECTION NEW TO EXISTING

NORTH

1 MECHANICAL PLAN SECOND FLOOR

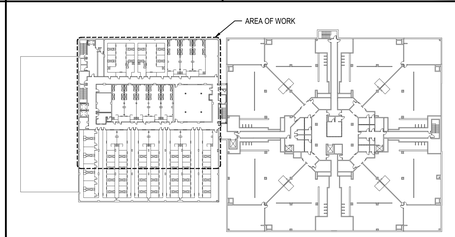
SCALE: 1/8"=1'0"

0 4 8 12 16 20

GRAPHIC SCALE

JAIL KEY PLAN

2ND FLOOR - SOUTH BUILDING | 3RD FLOOR - NORTH BUILDING



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WILLIAMSON COUNTY JAIL RENOVATIONS

306 W. 4TH STREET
GEORGETOWN, TX 78626

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PROJECT NO:	1066.3
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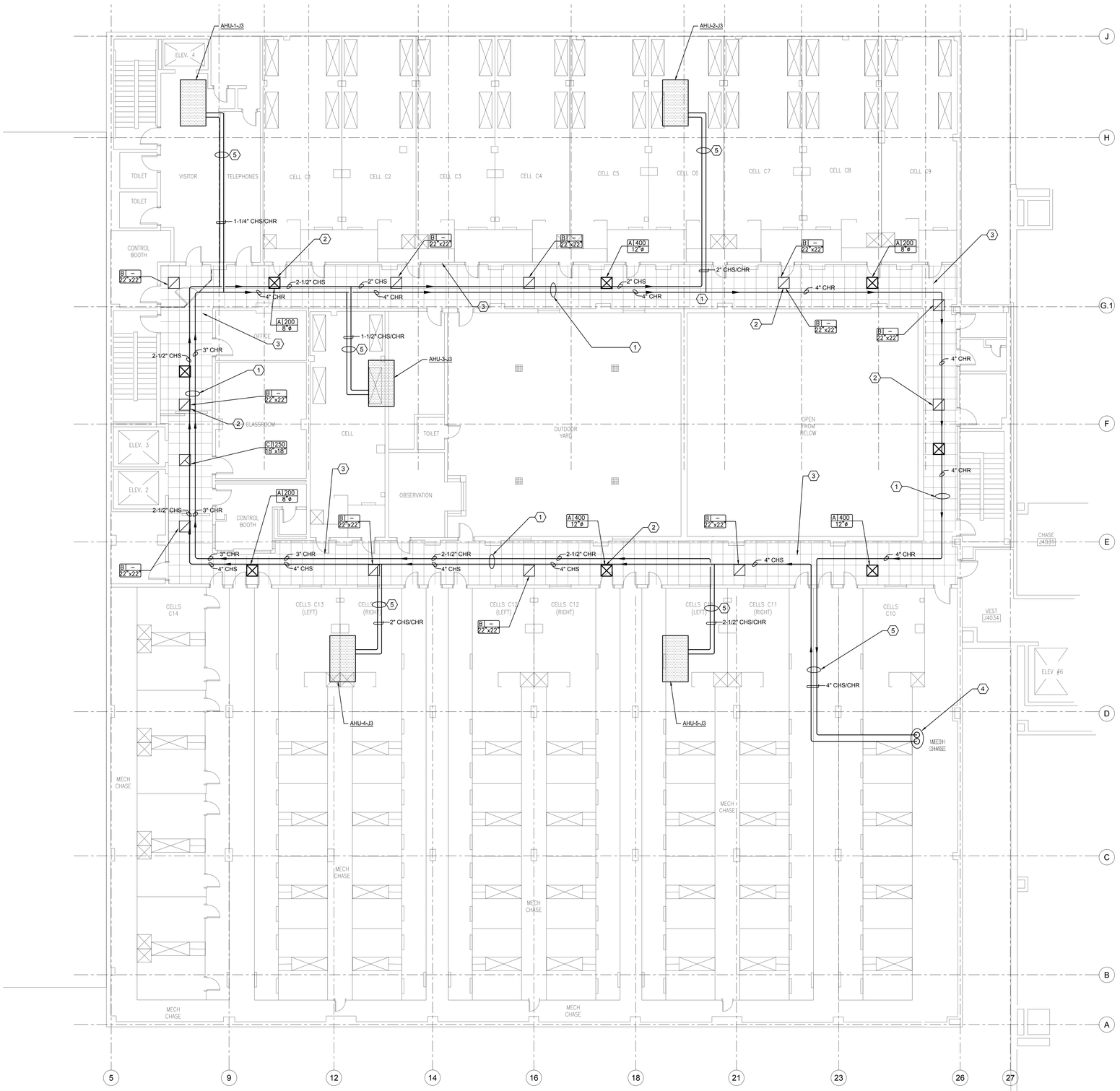
SHEET TITLE
SOUTHSIDE MECH PLAN SECOND FLOOR

M1.2
SHEET

1/8/2019 12:01 PM

BASE BID



KEYED NOTES:

1. REINSULATE ALL CHILLED WATER SUPPLY AND RETURN PIPING ASSOCIATED RISERS.
2. REPLACE ALL SUPPLY, RETURN AND EXHAUST AIR DEVICES IN THE CORRIDOR CEILING. REFER TO AIR DEVICE SCHEDULE ON SHEET M2.1. AIR BALANCE EACH DEVICE TO CFM SHOWN.
3. REFER TO ARCH PLAN A1.2 FOR CEILING PLAN.
4. INSULATE CHS & CHR PIPING RISER TO EXISTING FLOOR PENETRATIONS. CONNECT NEW INSULATION TO EXISTING WITH COMPLETE VAPOR BARRIER.
5. CHILLED WATER SUPPLY AND RETURN PIPES ARE ACCESSIBLE ABOVE CELLS.

MECHANICAL LEGEND

⊠	NEW SUPPLY DEVICE
⊘	NEW RETURN AIR DEVICE
⊠	NEW EXHAUST GRILLE
A 180 8"ø	DIFFUSER TYPE / DIFFUSER CFM / DIFFUSER NECK SIZE
▨	EXISTING FAN COIL UNIT TO REMAIN
☢	POINT OF CONNECTION NEW TO EXISTING

NORTH

1 MECHANICAL PLAN THIRD FLOOR

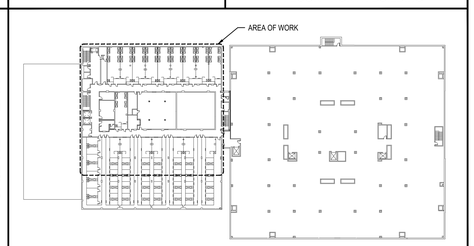
SCALE: 1/8"=1'0"

0 4 8 12 16 20

GRAPHIC SCALE

3RD FLOOR - SOUTH BUILDING	4TH FLOOR - NORTH BUILDING

JAIL KEY PLAN



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WILLIAMSON COUNTY JAIL RENOVATIONS

306 W. 4TH STREET
GEORGETOWN, TX 78626

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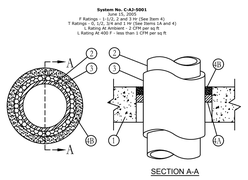
SHEET TITLE
SOUTHSIDE MECH PLAN THIRD FLOOR

M1.3
SHEET

Bid 1901-286

Williamson County, Texas

BASE BID



System No. C-AJ-5001
June 15, 2004
F Ratings - 1, 2 and 3 Hr (See Item 4)
T Ratings - 0, 1/2, 3/4 and 1 Hr (See Items 3A and 4)
L Rating At Ambient - 2 CFM per sq ft
L Rating At 400 F - less than 1 CFM per sq ft

1. Floor Wall Assembly - Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Max diam of opening is 18 in. (457 mm).

1A. Steel Sleeve (Optional, not shown) - Nom 10 in. (254 mm) (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 2 in. (51 mm) above top of floor or beyond either surface of wall.

T Rating is 3 Hr when sleeve is used.

2. Through Penetrant - Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper pipe, nom 12 in. (305 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) Class 50 (or heavier) ductile iron pressure pipe or nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe centered in the opening and rigidly supported on both sides of the floor assembly.

3. Pipe Covering* - Nom 1/2 in. to 3 in. (13 mm to 51 mm) thick foil/fire-retardant foamy elastomeric pipe insulation. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking and with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

3A. Steel Sleeve (Optional, not shown) - Nom 10 in. (254 mm) (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 2 in. (51 mm) above top of floor or beyond either surface of wall.

T Rating is 3 Hr when sleeve is used.

4. Firestop System - The details of the firestop system shall be as follows:

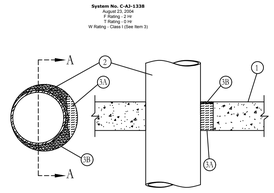
A. Packing Material - Min 1 in. (25 mm) thickness of firmly packed mineral wool batt insulation used to fill void or cavity opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material (Item B).

B. Fill,Void or Cavity Material* - Caulk or Sealant - Applied to fill the annular space flush with the top surface of floor or from both surfaces of wall as required to provide a min 1/4 in. (6.4 mm) diam bead of caulk fill material (a 2 in. (51 mm), When nom pipe covering thickness is 1-1/2 in (38 mm) or less, min thickness of caulk fill material is 1 in. (25 mm)

The hourly F and T Ratings of the firestop system are dependent upon the thickness of the floor, the size of pipe, the thickness of pipe covering material and the size of the annular space (between the pipe covering material and the edge of the circular through opening), as shown in the following table.

3M COMPANY - FB-3000 WT sealant.

*Bearing the UL Classification Marking



System No. C-AJ-1338
August 23, 2004
F Rating - 2 Hr
T Rating - 0 Hr
W Rating - Class I (See Item 3)

1. Floor or Wall Assembly - Min 2-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete.

2. Through Penetrants - One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe or tubing and edge of opening shall be min 0 in. to max 1-7/8 in. Annular space to be tightly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or tubing may be used:

A. Steel Pipe - Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Iron Pipe - Nom 24 in. diam (or smaller) cast or ductile iron pipe.
C. Conduit - Nom 6 in. diam (or smaller) steel conduit, or nom 6 in. (or smaller) steel conduit couplings threaded.
D. Copper Tubing - Nom 6 in. diam (or smaller) Type M (or heavier) copper tube.
E. Copper Pipe - Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.

3. Firestop System - The details of the firestop system shall be as follows:

A. Packing Material - Min 2-1/4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

B. Fill,Void or Cavity Materials* - Caulk or Sealant - Min 1/4 in. thickness of fill material applied within the annulus, flush with both surfaces of floor or wall assembly. Min 1/4 in. diam bead of caulk applied to the pene/rant/concrete interface at the point contact location on the top surface of floor or both surfaces of wall.

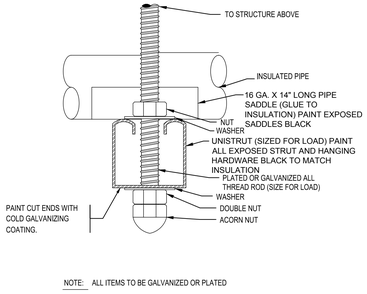
3M COMPANY - FB-3000 WT sealant.
(The W Rating applies only when FB-3000 WT is used.)

*Bearing the UL Classification Mark.

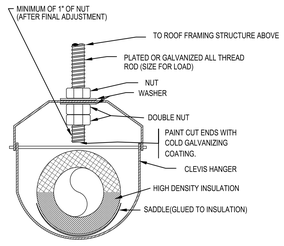
A FIRESTOPPING ASSEMBLY
SCALE: NONE

B FIRESTOPPING ASSEMBLY
SCALE: NONE

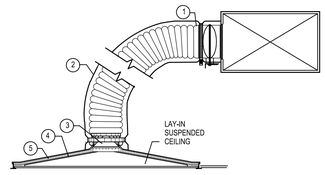
NOTE: OTHER FIRESTOP ASSEMBLIES USING DIFFERENT PRODUCTS AND DIFFERENT MANUFACTURERS MAY BE ACCEPTABLE PROVIDING:
1. THEY ARE APPROPRIATE
2. THEY HAVE A U.L.LISTING
3. THEY ARE PROPERLY SUBMITTED



NOTE: ALL ITEMS TO BE GALVANIZED OR PLATED



NOTE: 1. ALL HANGER ITEMS TO BE GALVANIZED OR PLATED
2. NON-INSULATED PIPE SUPPORT IS SIMILAR



NOTES: 1. SPIN COLLAR TYPE CONNECTOR, EXTERNALLY INSULATED, WITH VOLUME DAMPER AND DAMPER LOCK WITH STAND-OFF
2. PRE-INSULATED FLEX DUCT AS REQUIRED, INSTALLED, PERMANENTLY SEALED AND SUPPORTED TO PREVENT KINKING AND SHARP TURNS
3. ROUND TO SQUARE ADAPTER AS REQUIRED
4. LAY-IN-TYPE CEILING DIFFUSER AS SPECIFIED.
5. PROVIDE 1-1/2" THICK R-6 FOIL BACKED FIBERGLASS INSULATION TO COMPLETELY COVER DIFFUSER CONE SEAL FOIL TO CONE WITH FIBER REINFORCED FOIL BACKED
6. 2-90° TURNS ALLOWED
7. MAXIMUM FLEX LENGTH NOT TO EXCEED 6'-0"
8. SUPPORT SPACING AS SPECIFIED

C TYPICAL HANGER DETAIL
SCALE: NONE

D TYPICAL CLEVIS HANGER DETAIL
SCALE: NONE

E LAY-IN CEILING DIFFUSER DETAIL
SCALE: NONE

AIR DEVICE SCHEDULE

MARK	SERVICE	DESCRIPTION	FACE SIZE (SQ IN.)	NECK SIZE (IN.)	FINISH	MANUFACTURER / MODEL NUMBER
A	SUPPLY	SQUARE LOUVERED FACE CEILING DIFFUSER FOR LAY-IN TYPE CEILING, FOUR-WAY THROW, ALL STEEL CONSTRUCTION	24 x 24	SEE PLANS	WHITE	TITUS SG-TDC
A1	SUPPLY	SAME AS TYPE 'A' EXCEPT 12"x12" FACE SIZE	12 x 12	SEE PLANS	WHITE	TITUS SG-TDC
B	RETURN	SQUARE PERFORATED FACE CEILING RETURN AIR GRILLE, STEEL FRAME CONSTRUCTION	24 x 24	SEE PLANS	WHITE	TITUS PAR
B1	RETURN	SAME AS TYPE 'B' EXCEPT 12"x12" FACE SIZE	12 x 12	SEE PLANS	WHITE	TITUS PAR
C	EXHAUST	ALUMINUM CONSTRUCTION, EGGCRATE EXHAUST GRILLE FOR LAY-IN CEILING, SUITABLE FOR DUCTING	24 x 24	SEE PLANS	WHITE	TITUS 50F
C1	EXHAUST	SAME AS TYPE 'C' EXCEPT 12"x12" FACE SIZE	12 x 12	SEE PLANS	WHITE	TITUS 50F

AIR DEVICE SCHEDULE NOTES:
1. PROVIDE INSULATION BACKS FOR ALL SUPPLY / RETURN AIR DEVICES. (MIN. R-5)
2. PROVIDE GYPBOARD MOUNTING FRAME FOR ALL CEILING MOUNTED DEVICES INSTALLED IN GYPBOARD CEILING (TITUS TRM-S).
3. PROVIDE ALUMINUM OPPOSED BLADE DAMPER IN GRILLE/DIFFUSER NECKS ONLY WHERE INDICATED ON PLANS.
4. PRICE IS CONSIDERED AN EQUIVALENT MANUFACTURER.
5. CONTRACTOR SHALL VERIFY AND COORDINATE ALL FINISHES WITH ARCHITECT.
6. FLEX DUCT SIZE SHALL BE EQUAL TO NECK SIZE (RE: FLEX DUCT SCHEDULE).

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306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

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SHEET TITLE
MECHANICAL SCHEDULES AND DETAILS

M2.1
SHEET

1/8/2019 12:01 PM

Bid 1901-286

Williamson County, Texas

BASE BID

KEYED NOTES:

1. REMOVE EXISTING IN-LINE CIRCULATION PUMP AND REPLACE WITH COPPER PIPE, MATCH PIPE SIZE. (NOTE: PRO-PRESS CONNECTION ONLY.) REINSULATE NEW PIPING WITH THE SAME INSULATION THICKNESS AS ADJACENT PIPE INSULATION. DISCONNECT ELECTRICAL. REMOVE WIRING AND CONDUIT AND TERMINATE IN CLOSES EXISTING JUNCTION BOX. CLOSE ALL OPENINGS IN JUNCTION BOX. REFER TO DETAIL 4 & 5 ON SHEET P3.1.

1 DEMO PUMPS - SECOND FLOOR
SCALE: 1/8"=1'0"

0 4 8 12 16 20
GRAPHIC SCALE

NORTH

JAIL KEY PLAN

1ST FLOOR - SOUTH BUILDING | 2ND FLOOR - NORTH BUILDING

AREA OF WORK

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SHEET TITLE
PLUMBING
WATER PLAN
SECOND FLOOR

P1.2
SHEET

1/8/2019 12:01 PM

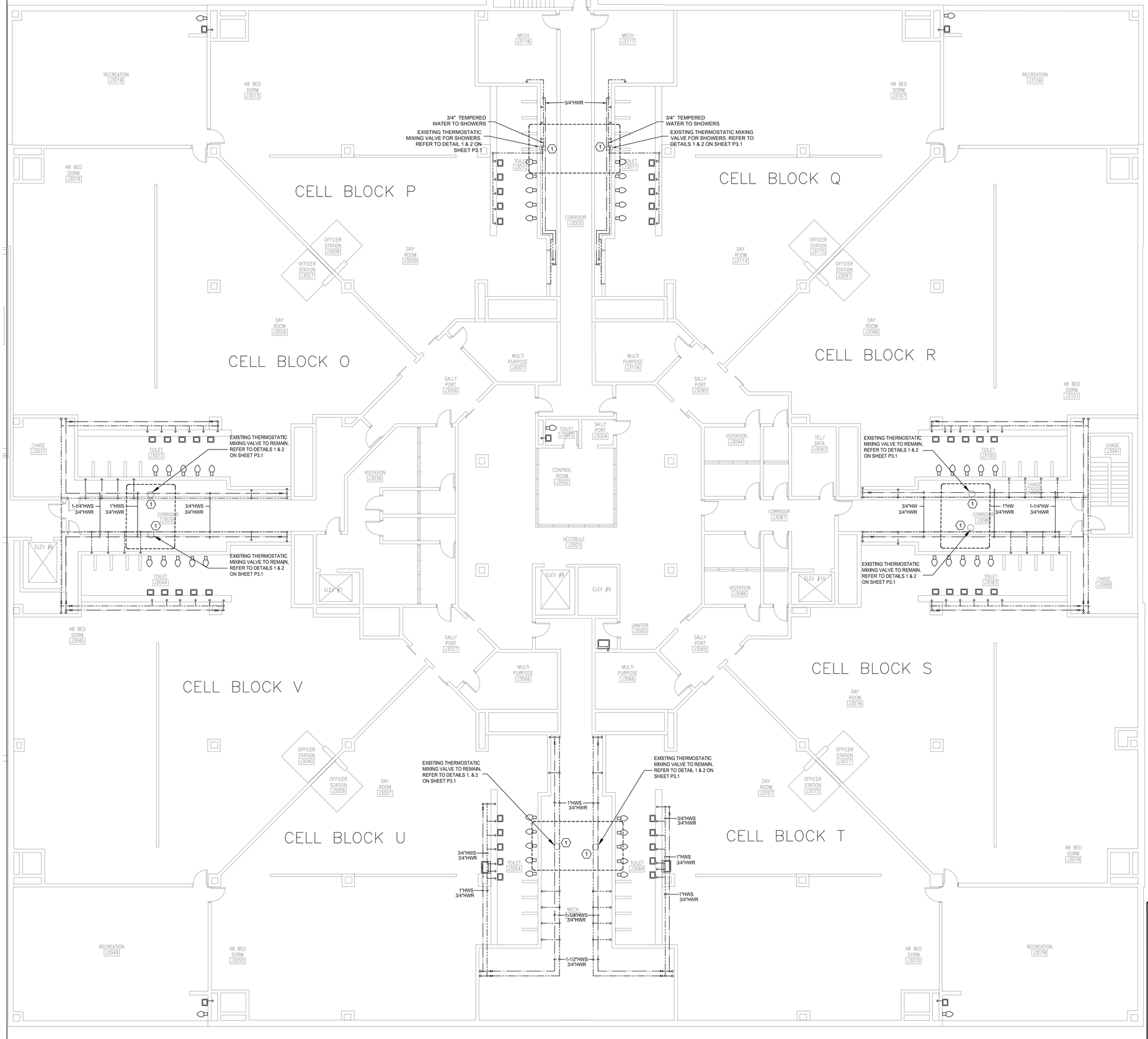
Bid 1901-286

Williamson County, Texas

BASE BID

KEYED NOTES:

1. REPIPE DOMESTIC HOT WATER RETURN LINE AS SHOWN ON DETAILS 1 & 2 ON SHEET P3.1. INSULATE NEW BYPASS HWR LINE TO MATCH ADJACENT PIPE INSULATION.

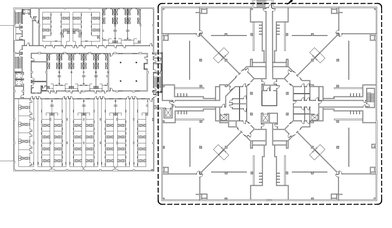


0 4 8 12 16 20
GRAPHIC SCALE

2 PLUMBING PIPING 3RD FLOOR
SCALE: 1/8"=1'0"

JAIL KEY PLAN

2ND FLOOR - SOUTH BUILDING	3RD FLOOR - NORTH BUILDING



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SHEET TITLE
PLUMBING
WATER PLAN
THIRD FLOOR

P1.3
SHEET

1/8/2019 12:01 PM

Bid 1901-286

Williamson County, Texas

SHELL SPACE

SHELL SPACE

SHELL SPACE

SHELL SPACE

SHELL SPACE

SHELL SPACE

1 EXISTING 3/4"HWS RISER & 3/4" HWR

1 EXISTING 3/4"HWS RISER & 3/4" HWR

1 1"HWS RISER & 3/4" HWR

1 1"HWS RISER & 3/4" HWR

1 1"HWS RISER & 3/4" HWR

1 1"HWS RISER & 3/4" HWR

1 EXISTING 3/4"HWS RISER & 3/4" HWR

1 EXISTING 3/4"HWS RISER & 3/4" HWR

NORTH

1 PLUMBING WATER PLAN - FOURTH FLOOR

SCALE: 1/8"=1'0"

0 4 8 12 16 20

GRAPHIC SCALE

BASE BID

KEYED NOTES:

1 PROVIDE CIRCUIT SETTER SIMILAR TO THERM MEGA TECH MODEL NO. CS-3/4"-120. CIRCUIT SETTER SHALL BE NSF CERTIFIED. REFER TO DETAIL 3 / SHEET P3.1.

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PROJECT NO:	1066.3
DRAWN BY:	SR
DESIGNED BY:	OV
CHECKED BY:	TA

SHEET TITLE
PLUMBING WATER PLAN FOURTH FLOOR

P1.4
SHEET

JAIL KEY PLAN

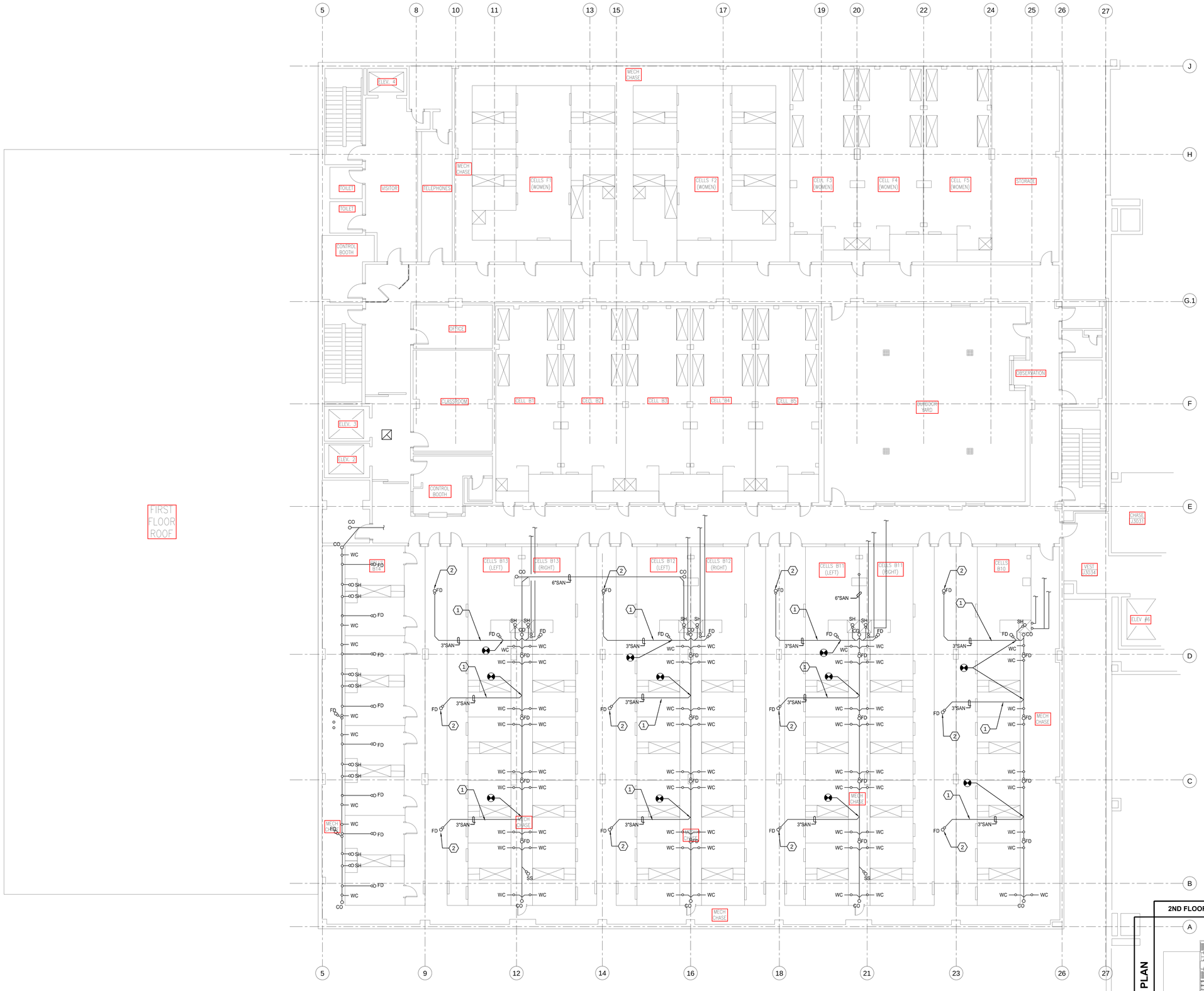
3RD FLOOR - SOUTH BUILDING | 4TH FLOOR - NORTH BUILDING

AREA OF WORK

1/8/2019 12:01 PM

p. 157

BASE BID



KEYED NOTES:

1. REMOVE EXISTING 3" SANITARY DRAIN LINE AND TRAP ASSEMBLIES BACK TO EXISTING 4" AND 6" SANITARY LINES AS SHOWN. ALL LINES ARE LOCATED ABOVE FIRST FLOOR CEILINGS. PROVIDE NEW 3" SCHEDULE 40 PVC SANITARY PIPE. ENSURE PIPING IS INSTALL AT A MINIMUM OF 1/4" SLOPE PER FOOT.
2. EXISTING FLOOR DRAINS SHALL BE REUSED. TYPICAL FOR ALL FLOOR DRAINS.

GENERAL NOTES:

1. HORIZONTAL PIPING - THE HORIZONTAL CAST IRON PIPING FROM THE FLOOR DRAINS SHALL BE REPLACED WITH SOLID WALL SCHEDULE 40 PRC WITH DWV FITTINGS, SLOVENT WELDED. INSTALL NEW PIPING AT 1/4" PER FOOT SLOPE.
2. CONNECTIONS - PROVIDE HEAVY-DUTY (4-CLAMP BANDS) WITH STAINLESS STEEL SHIELD AND ELASTOMERIC GASKET FOR CONNECTION FROM CAST IRON TO PVC. TORQUE BANDS TO MANUFACTURER'S SPECIFICATIONS.
3. EXISTING FLOOR DRAINS - RETAIN IN PLACE UNLESS DAMAGED.
4. FLOOR DRAIN TRAPS - REPLACE THE CAST IRON TRAPS ON THE FLOOR DRAINS WITH NEW CAST IRON TRAPS.
5. NEW FLOOR CLEANOUTS (AS REQUIRED) - PROVIDE NEW CAST IRON FLOOR CLEANOUTS WITH CAST IRON RISER AND CAST IRON ELBOW. TRANSITION TO PVC AFTER THE CAST IRON ELBOW.
6. INSULATION - INSULATE THE HORIZONTAL PVC, FLOOR DRAIN TRAP AND NEW CLEANOUT BELOW FLOOR WITH 1" THICK PRE-MOLDED PIPE INSULATION WITH FSK COVER. INSULATION TO HAVE A 25/20 FIRE SMOKE RATING.
7. SUPPORT - SUPPORT PIPING FROM CLEVIS TYPE HANGERS AT A MAXIMUM OF 5'-0" ON CENTER. PROVIDE INSULATION SADDLES AT UNISULATED PIPING. SUPPORT FLOOR DRAIN TRAP INDEPENDENTLY.

PLUMBING LEGEND	
	EXISTING SANITARY PIPING
	POINT OF NEW CONNECTION

NORTH

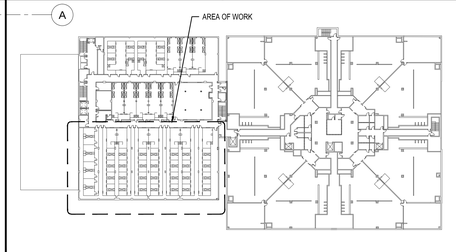
1 SANITARY PLAN SECOND FLOOR

SCALE: 1/8"=1'0"

GRAPHIC SCALE 0 4 8 12 16 20

2ND FLOOR - SOUTH BUILDING	3RD FLOOR - NORTH BUILDING

JAIL KEY PLAN



TAILOR Inc, engineers
6300 La Calma, Suite 100
Austin, Texas 78752
Texas Firm F-3271
Ph: 512.451.6579

STATE OF TEXAS
Thomas R. Alexander
103239
LICENSED PROFESSIONAL ENGINEER
12/12/18

CONSTRUCTION DOCS 12.12.18

ARCHITECTS
ENGINEERS
SURVEYORS
CP&Y
OFFICE 254-772-9272 ■ 200 WEST STATE HWY 6
SUITE 620 ■ WACO, TEXAS 76712

WILLIAMSON COUNTY JAIL RENOVATIONS

306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

PROJECT NO:	1066.3
DRAWN BY:	SR
DESIGNED BY:	OV
CHECKED BY:	TA

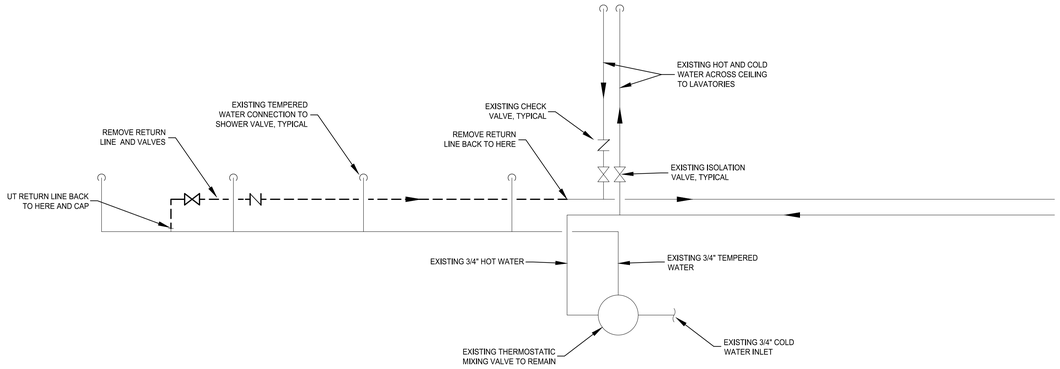
SHEET TITLE
SOUTHSIDE PLUMBING PLAN SECOND FLOOR

P2.2
SHEET

Bid 1901-286

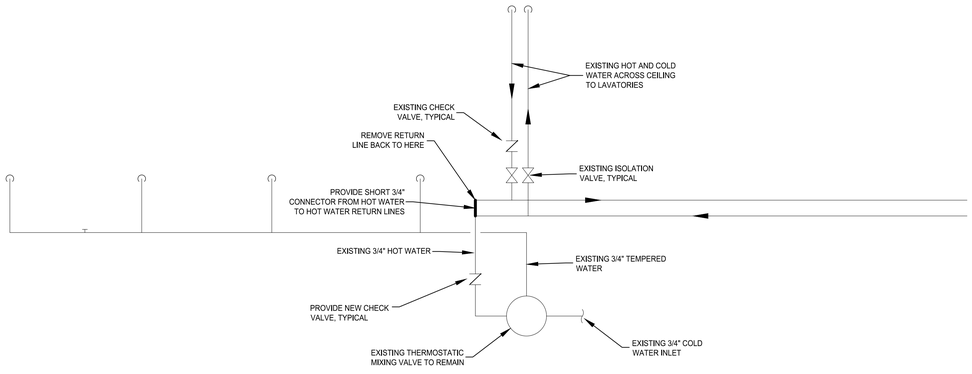
Williamson County, Texas

BASE BID



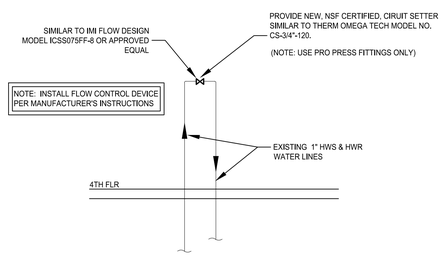
1 DEMO PIPING - 3RD FLOOR

SCALE: NONE



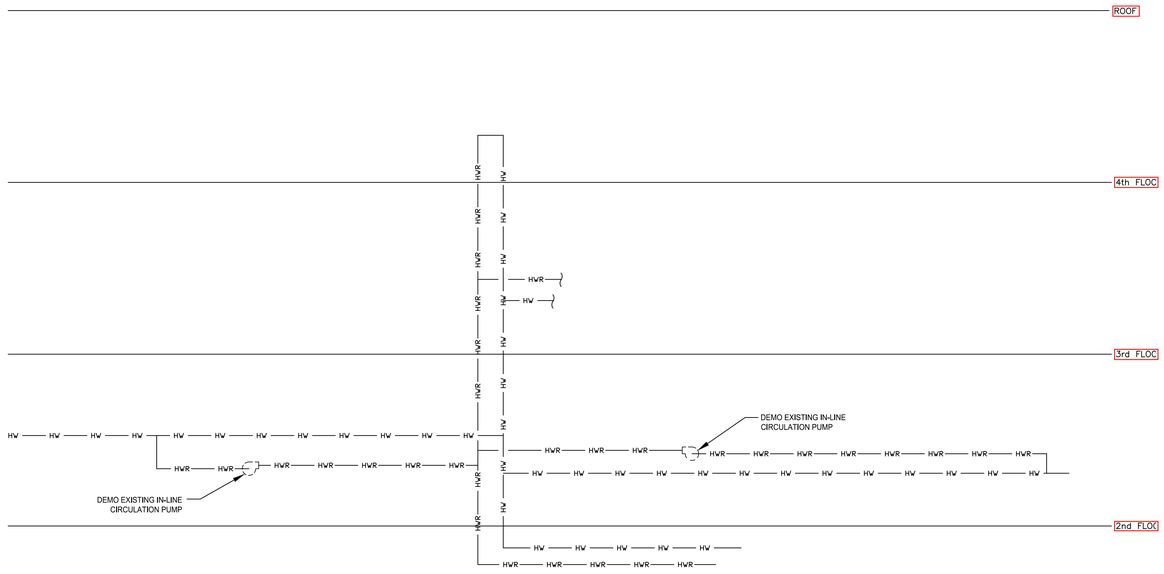
2 NEW PIPING 3RD FLOOR

SCALE: NONE



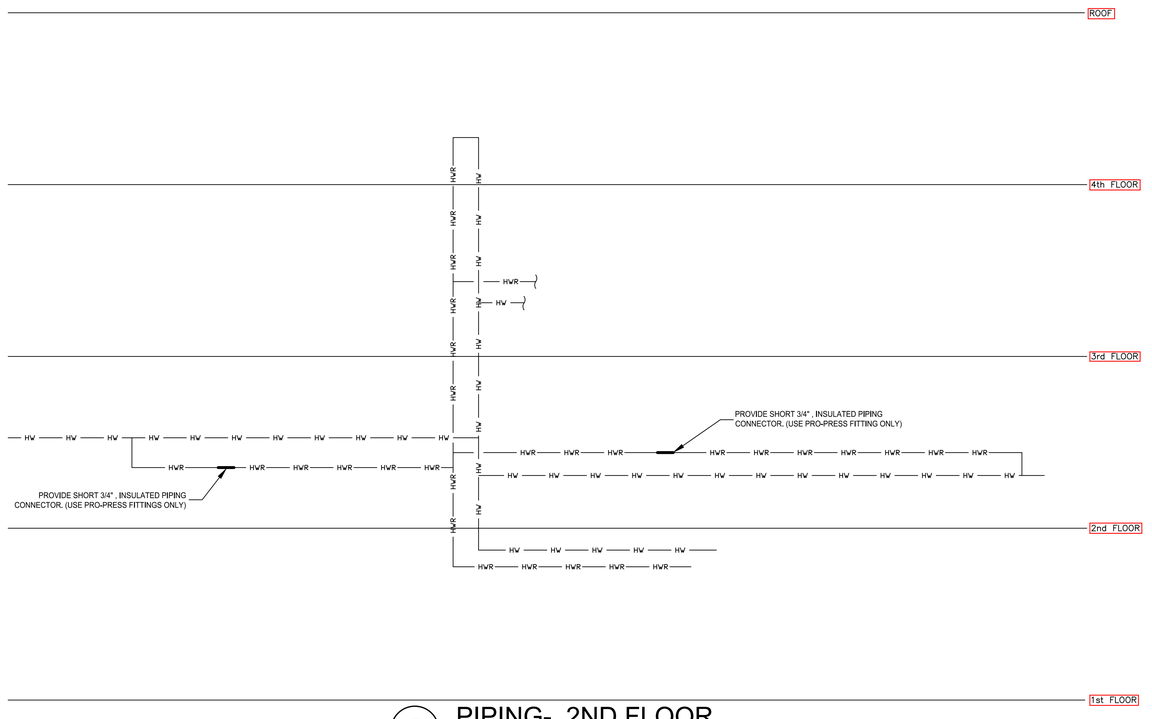
3 HWS/R PIPING 4TH FLOOR

SCALE: NONE



4 DEMO PUMP- 2ND FLOOR

SCALE: NONE



5 PIPING- 2ND FLOOR

SCALE: NONE

Tatum Engineering, Inc. engineers
6300 La Calma, Suite 100
Austin, Texas 78752
Texas Firm F-3271
Ph: 512.451.6579

STATE OF TEXAS
Thomas R. Alexander
43239
REGISTERED PROFESSIONAL ENGINEER
12/12/18

CONSTRUCTION DOCS 12.12.18

ARCHITECTS
ENGINEERS
SURVEYORS
CP&Y
OFFICE 254-772-9272 ▪ 200 WEST STATE HWY 6
SUITE 620 ▪ WACO, TEXAS 76712

WILLIAMSON COUNTY JAIL RENOVATIONS

306 W. 4TH STREET
GEORGETOWN, TX 78626

MARK	DATE	DESCRIPTION

PROJECT NO:	1066.3
DRAWN BY:	SR
DESIGNED BY:	OV
CHECKED BY:	TA

SHEET TITLE
PLUMBING
PIPING
SCHEMATICS

SHEET
P3.1

18/2019 12:01 PM

Williamson County

South Jail Renovations – FY19

BID FORM

- *Qualifications (40 Points):*
  - General Contractor Project Manager: _____
  - General Contractor Project Supt: _____
  - HVAC Subcontractor: _____
  - Plumbing Subcontractor: _____
  - Electrical Subcontractor: _____
  - Intercom Subcontractor: _____

- *Pricing (35 Points):*
  - Base Bid: Chilled Water Pipe Insulation, Ceilings, Lighting, Domestic & Sanitary Plumbing
    - (words) _____
    - (figures)_____
  - Alternate No 1: Man-Traps
    - (words) _____
    - (figures)_____
  - Alternate No 2: Loading Dock & Sally Port Lighting
    - (words) _____
    - (figures)_____
  - Alternate No 3: Intercom
    - (words) _____
    - (figures)_____
  - Alternate No 4: Stainless Steel Millwork
    - (words) _____
    - (figures)_____

Williamson County

South Jail Renovations – FY19

BID FORM - Continued

- *Reputation (15 Points)*
  - References - Provide via separate sheets
  - Safety Record – attach
- *Location of Office (10 Points)*
  - Location
    - (address) _____
    - (city)_____
    - (state / zip) _____
- Submitted by:

_____
(*Signature*)

_____
(*Printed / Typed Name & Title*)

_____
(*Company Name*)

AGREEMENT
BETWEEN OWNER AND CONTRACTOR

The **Owner**: Williamson County
710 Main Street, Ste. 101
Georgetown, Texas 78626

and **Contractor** _____
_____
_____ _____

for the **Project**: _____
_____
_____ _____

Architect: _____
_____
_____ _____

AGREEMENT, this Agreement Between Owner and Contractor (hereinafter called "Agreement") is entered into effective as of the date indicated herein below and all attachments (the "Effective Date"), by and between Williamson County a political subdivision of the State of Texas (hereinafter called the "Owner") and _____ (hereinafter called "Contractor").

WHEREAS, the Owner desires to retain a Contractor for the _____ (hereinafter called the "Project"),

WHEREAS, the Owner desires a Contractor who will render, diligently and competently in accordance with the highest standards used in the profession, all Contractor services which shall be necessary or advisable for the expeditious, economical and satisfactory completion of the Project, and

NOW, THEREFORE, in consideration of the mutual undertakings herein contained, the parties hereto agree as follows:

ARTICLE 1 SCOPE OF WORK

The Contractor has overall responsibility for and shall provide complete construction services and furnish all materials, equipment, tools and labor as necessary or reasonably inferable to complete the Work, or any phase of the Work, in accordance with the Specifications and Drawings for the Project and the Owner's requirements. The Specifications and Drawings were prepared for Williamson County by the Architect. The Contractor shall do everything required by the Contract Documents.

ARTICLE 2 CONTRACT DOCUMENTS

2.1 The Contract Documents consist of the following, which are incorporated by reference for all purposes:

a. This Agreement and all exhibits and attachments listed, contained or referenced in this Agreement;
b. The Uniform General Conditions for Williamson County ("General Conditions");
c. The Supplementary or Special Conditions, if any;
d. All Addenda issued prior to the Effective Date of this Agreement;
e. The Bid/Proposal Documents as defined by the Invitation for Bidders/Request for Proposals;
f. All Change Orders issued after the Effective Date of this Agreement;
g. Minimum Insurance Coverages and Minimum Coverage Amounts, which is attached here to as **Exhibit 1**; and
h. The Drawings, Specifications, details and other documents developed by Architect to describe the Project and accepted by Owner, which are attached hereto **Exhibit 2**.

2.2 The Contract Documents form the entire and integrated Contract and Agreement between Owner and Contractor and supersede all prior negotiations, representations or agreements, written or oral. Contractor acknowledges receipt of all Contract Documents as of the date of its execution hereof.

2.3 The term "Contractor" shall be interchangeable with the terms "Proposer," "Bidder," Respondent" and "General Contractor" or other similar terms as appropriate in the Contract Documents.

ARTICLE 3 CONTRACT TIME

The Owner shall provide a Notice to Proceed in which a date for commencement of the work shall be started. The Contractor shall achieve Substantial Completion of the Work within _____ (_____) calendar days after such commencement date, as such completion date may be extended by approved Change

Orders. Unless otherwise specified in writing, Contractor shall achieve Final Completion within _____ (_____) calendar days of Substantial Completion. The time set forth for completion of the work is an essential element of the Contract.

ARTICLE 4 CONTRACTOR REPRESENTATIONS

4.1 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bid/Proposal Documents.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, and performance of the Work.

D. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.

E. Based on the information and observations referred to in Paragraph 4.1.D above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

F. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

G. Contractor has given Architect written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Architect is acceptable to Contractor.

H. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 5 THE CONTRACT PRICE; OWNER'S CONSTRUCTION CONTINGENCY

5.1 Contract Price. Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amount of **$**_____

5.2 Contract Payments. Method and terms of payment of the Contract Price shall be in accordance with the Contract Documents.

5.3 Owner's Construction Contingency. The following lump sum amount shall serve as the Owner's Construction Contingency from which changes in the Work are to be paid in accordance with the General Conditions:

$_____

The Owner's Construction Contingency is controlled solely by the Owner and such amount is not included in the Contract Price set out in 5.1 above. Expenditures from the Owner's Construction Contingency must be made by Change Order issued by the Architect and approved by the Owner in accordance with the General Conditions. Contractor shall not be entitled to any compensation from the any unused amounts of the Owner's Construction Contingency.

5.4 Allowable Overhead and Profit Markup on Changes in the Work. In case of an increase in the Contract Price due to a change in the Work and in accordance with § 7.3.7 of the General Conditions, the amounts Contractor may add to the pricing of a change for overhead and profit are as follows:

a. For Work performed directly by Contractor with its Own Employees: Contractor may add up to 15% for Work performed directly by Contractor for any specific change.

b. For Managing Subcontracted Work: Contractor may add up to 10% for managing subcontracted Work for any specific change.

Only one percentage, referenced above, shall be used for the purpose of calculating the markup for a specific change amount. On changes involving both additions and deletions,

the allowed markup will be allowed only on the net addition. The allowed markup shall cover all overhead expenses and profit of any kind relating to the specific change.

ARTICLE 6 TIME

6.1 TIME LIMITS STATED IN THE CONTRACT DOCUMENTS ARE OF THE ESSENCE OF THIS AGREEMENT.

6.2 Unless otherwise approved in writing, the Owner and the Contractor shall perform their respective obligations under the Contract Documents as expeditiously as is consistent with reasonable skill and care and the orderly progress of the Work.

6.3 Liquidated Damages. Contractor and Owner recognize that time is of the essence and that Owner will suffer financial loss if the Work is not completed within the times specified in Article 3 above, plus any extensions thereof allowed in accordance with the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, for each consecutive calendar day after the date of Substantial Completion that the Work is not substantially completed, the Owner may deduct the amount of:

Five Hundred Dollars per calendar day ($500.00/calendar day)

from any money due or that becomes due the Contractor, not as a penalty but as liquidated damages representing the parties' estimate at the time of contract execution of the damages that the Owner will sustain for late completion. The parties stipulate and agree that calculating Owner's actual damages for late completion of the Project would be impractical, unduly burdensome, and cause unnecessary delay and that the amounts of daily liquidated damages set forth are reasonable. Contractor expressly agrees that the amounts of daily liquidated damages are a reasonable forecast of the actual damages Owner will incur due to any such delay.

ARTICLE 7 NOTICES

Notices of claims, disputes or other legal notices shall be in writing and shall be deemed to have been given when delivered in person to the representative of the Contractor or Owner for whom it is intended, as set out below or sent by U. S. Mail to the representative of the Contractor or Owner for whom it is intended, as set out below. Mail notices are deemed effective upon receipt or on the third business day after the date of mailing, whichever is sooner.

If to Owner: Williamson County Judge
710 Main Street, Ste. 101
Georgetown, Texas 78626

with copy to: Hal C. Hawes
General Counsel to the
Williamson County Commissioners Court
710 Main Street, Suite 102
Georgetown, Texas 78626

If to Contractor: _____
_____
_____ _____

The parties may make reasonable changes in the person or place designated for receipt of notices upon advance written notice to the other party.

ARTICLE 8 PARTY REPRESENTATIVES

The Owner's Designated Representative (sometimes referred to as the "ODR") authorized to act in the Owner's behalf with respect to the Project is:

_____
_____
_____ _____
Phone (512) _____
Fax (512) _____

The Contractor's designated representative authorized to act on the Contractor's behalf and bind the Contractor with respect to the Project is:

_____
_____
_____ _____
Phone (512) _____
Fax (512) _____

The parties may make reasonable changes in their designated representatives upon advance written notice to the other party.

ARTICLE 9 ENTIRE AGREEMENT

This Agreement supersedes all prior agreements, written or oral, between Contractor and Owner and shall constitute the entire agreement and understanding between the parties with respect to the Project. This Agreement and the terms of the Contact Documents shall

be binding upon the parties and may not be waived, modified, amended or altered except by a writing signed by Contractor and Owner.

BY SIGNING BELOW, the Parties have executed and bound themselves to this Agreement to be effective as of the date of the last party's execution below (the "Effective Date").

WILLIAMSON COUNTY Williamson County, Texas,	_____, a Texas _____,
By: _____	By: _____
Printed Name: _____	Printed Name: _____
Title: _____	Title: _____
Date: _____ ____, 20____	Date: _____ ____, 20____

EXHIBIT 1

Minimum Insurance Coverages
and
Minimum Coverage Amounts

A. All policies of insurance provided by the Contractor must comply with the requirements of this Exhibit, the Contract Documents and the laws of the State of Texas.

B. The Contractor shall provide and maintain, until the Work covered in the Agreement Between Owner and Contractor is completed and accepted by the Owner, the minimum insurance coverages in the minimum amounts as described below. Coverage shall be written on an occurrence basis by companies authorized and admitted to do business in the State of Texas and rated A- or better by A.M. Best Company, or otherwise acceptable to Owner.

	Type of Coverage	Limits of Liability
1.	Worker's Compensation	Statutory
2.	Employer's Liability	
	Bodily Injury by Accident	$500,000 Ea. Accident
	Bodily Injury by Disease	$500,000 Ea. Employee
	Bodily Injury by Disease	$500,000 Policy Limit

3. Comprehensive general liability including completed operations and contractual liability insurance for bodily injury, death, or property damages in the following amounts:

COVERAGE	PER OCCURRENCE
Comprehensive General Liability (including premises, completed operations and contractual)	$1,000,000
Aggregate policy limits:	$2,000,000

4. Comprehensive automobile and auto liability insurance (covering owned, hired, leased and non-owned vehicles):

COVERAGE	PER PERSON	PER OCCURRENCE
Bodily injury (including death)	$1,000,000	$1,000,000

Property damage	$1,000,000	$1,000,000
Aggregate policy limits	No aggregate limit	

5. Builder's Risk Insurance (all risks)
An all risk policy, in the amount equal at all times to 100% of the Contract Price or Contract Sum. The policy shall be issued in the name of the Contractor and shall name its Subcontractors as additional insureds. The Owner shall be named as a loss payee on the policy. The builders risk policy shall have endorsements as follow:

a. This insurance shall be specific as to coverage and not considered as contributing insurance with any permanent insurance maintained on the present premises. If off-site storage is permitted, coverage shall include transit and storage in an amount sufficient to protect property being transported or stored.

b. This insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, caused by certified acts of terrorism as defined in the Terrorism Risk Insurance Act, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss as well as coverage for building materials while in transit or building materials suitably stored at a temporary location. Property insurance provided by the Contractor shall not cover any tools, apparatus, machinery, scaffolding, hoists, forms, staging, shoring, and other similar items commonly referred to as construction equipment that may be on the site and the capital value of which is not included in the Work. The Contractor shall make its own arrangements for any insurance it may require on such construction equipment. Any such policy obtained by the Contractor under this section shall include a waiver of subrogation in accordance with the requirements of Section 11.3.4 of the General Conditions.

C. For renovation projects and or portions of work contained within an existing structure, the Owner waives subrogation for damage by fire to existing building structure(s), if the Builder's Risk Policy has been endorsed to include coverage for existing building structure(s) in the amount described in the Special Conditions. However, Contractor shall not be required to obtain such an endorsement unless specifically required by the

Special Conditions in the Contract Documents. The aforementioned waiver of subrogation shall not be effective unless such endorsement is obtained.

6. Flood insurance when specified in Supplementary General Conditions or Special Conditions.

7. Umbrella coverage in the amount of not less than $5,000,000.

C. Workers' Compensation Insurance Coverage:

a. Definitions:

(1) Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the Texas Workers' Compensation Commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the Project.
(2) Duration of the Project - includes the time from the beginning of the work on the Project until the Contractor's/person's work on the Project has been completed and accepted by the Owner.
(3) Coverage – Workers' compensation insurance meeting the statutory requirements of the Texas Labor Code, §401.011(44).
(4) Persons providing services on the Project ("subcontractor") - includes all persons or entities performing all or part of the services the Contractor has undertaken to perform on the Project, regardless of whether that person contracted directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the Project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

b. The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, §401.011(44) for all employees of the Contractor providing services on the Project, for the duration of the Project.
c. The Contractor must provide a certificate of coverage prior to execution of the Agreement Between Owner and Contractor, and in no event later than ten (10)

days from Notice of Award. Failure to provide the insurance in a timely fashion may result in loss of Contractor's bid bond.

d. If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the Project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the Owner showing that coverage has been extended.
e. The Contractor shall obtain from each person providing services on a project, and provide to the Owner:

(1) a certificate of coverage, prior to that person beginning work on the Project, so the Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and
(2) no later than seven days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project.

f. The Contractor shall retain all required certificates of coverage for the duration of the Project and for one year thereafter.
g. The Contractor shall notify the Owner in writing by certified mail or personal delivery, within 10 days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project.
h. The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the Project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

i. The Contractor shall contractually require each person with who it contracts to provide services on a project, to:

(1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas labor Code, Section 401.011(44) for all of its employees providing services on the Project, for the duration of the Project;
(2) provide to the Contractor, prior to that person beginning work on the Project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the Project, for the duration of the Project;
(3) provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

(4) obtain from each other person with whom it contracts, and provide to the Contractor:

a. a certificate of coverage, prior to the other person beginning work on the Project; and

b. a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;

(5) retain all required certificate of coverage on file for the duration of the Project and for one year thereafter;

(6) notify the Owner in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and

(7) contractually require each person with whom it contracts, to perform as required by paragraphs (1)-(7), with the certificates of coverage to be provided to the person for whom they are providing services.

j. By signing the Agreement Between Owner and Contractor or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Owner that all employees of the Contractor who will provide services on the Project will be covered by workers' compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

k. The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the Owner to declare the Agreement Between Owner and Contractor void if the Contractor does not remedy the breach within ten days after receipt of notice of breach from the Owner.

D. If insurance policies are not written for the amounts specified in this Exhibit, Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of primary coverage.

E. The furnishing of the above listed insurance coverage, as may be modified by the Contract Documents, must be tendered prior to execution of the Agreement Between Owner and Contractor, and in no event later than ten (10) days from Notice of Award. Failure to provide the insurance in a timely fashion may result in loss of Contractor’s bid bond.

F. Owner shall be entitled, upon request and without expense, to receive copies of the policies and all endorsements as they apply to the limits set out in this Exhibit.

G. Contractor shall be responsible for payment of premiums for all of the insurance coverages required under this Exhibit. Contractor further agrees that for each claim, suit or action made against insurance provided hereunder, with respect to all matters for which the Contractor is responsible hereunder, Contractor shall be solely responsible for all deductibles and self-insured retentions. Any deductibles or self-insured retentions over **$75,000** in the Contractor's insurance must be declared and approved in writing by Owner in advance.

EXHIBIT 2 –DRAWINGS AND SPECIFICATIONS

FOR

_____

LIST OF DRAWINGS

DWG	DRAWING TITLE	ISSUE DATE

TABLE OF CONTENTS
For
TECHNICAL SPECIFICATION SECTIONS

DIVISION 1

END OF TECHNICAL SPECIFICATIONS

UNIFORM GENERAL CONDITIONS
FOR WILLIAMSON COUNTY

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
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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 as revised, 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 Owner or 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 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.

§ 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 KNOWLEDGE: The terms "knowledge," "recognize," and "discover," their respective derivatives, and similar terms in the Contract Documents, as used in reference to the Contractor, shall be interpreted to mean that which the Contractor knows (or should know), recognizes (or should recognize), and discovers (or should discover) in exercising the care, skill, and diligence required by the Contract Documents. Analogously, the expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a contractor familiar with the Project and exercising the care, skill, and diligence required of the Contractor by the Contract Documents.§1.1.10 PRODUCT: Materials, systems, and equipment incorporated or to be incorporated in the Work.

§1.1.9 PROVIDE: Furnish and install and shall include, without limitation, labor, materials, equipment, transportation, services and other items required to complete the referenced tasks.

§1.1.02 FURNISH: Pay for, deliver (or receive), unload, inspect, and store products, materials, equipment, and accessories as specified while retaining care, custody and control until received for installation based on a signed receipt.

§ 1.1.11 INSTALL: Receive, unload, inspect, and store as specified while retaining care, custody and control; set or place in position, make required connections; and adjust and test as specified in the Contract Documents for satisfactory performance and operation.

§ 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 intended results. In the event of inconsistencies within or between parts of the Contract Documents, or between the Contract Documents and applicable standards, codes, and ordinances, the Contractor shall (i) provide the better quality or greater quantity of Work or (ii) comply with the more stringent requirement; either or both in accordance with the Owner or the Architect’s

interpretation. The terms and conditions of this Section 1.2.1, however, shall not relieve the Contractor of any of the obligations set forth in the Contract Documents.

§ 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.

§ 1.2.3.1 Whenever a product is specified in accordance with a Federal Specification, an ASTM Standard, an American National Standards Institute Specification, or other Association Standard, the Contractor, if required by the Specifications or if requested by the Owner, shall present evidence from the manufacture, certifying the product complies with the particular Standard or Specification. When required by the Contract Documents, supporting data shall be submitted to substantiate compliance.

§ 1.2.3.2 Whenever a product is specified or shown by describing proprietary items, model numbers, catalog numbers, manufacturer, trade names, or similar reference, no substitutions may be made unless accepted in strict accordance with the Substitution requirements stated in the Specifications or, if no Substitution requirements are stated in the Specifications, in accordance with the requirements stated elsewhere in the Contract Documents. Where two or more products are shown or specified, the Contractor has the option to use either of those shown or specified.

§ 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 USE OF DRAWINGS 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 will retain all common law, statutory and other reserved rights, including copyrights, except as provided in the Owner-Architect Agreement. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect’s or Architect’s consultants’ reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them 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 material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect’s consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM
If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall establish the necessary protocols governing such transmissions in writing, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

The Owner means Williamson County acting through any duly authorized representative as provided 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 ("Owner's Designated Representative"). The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.2 OWNER

§ 2.2.1 Appropriation of Funds by Owner. Owner believes it has sufficient funds currently available and authorized for expenditure to finance the costs of the Agreement between Owner and Contractor. Contractor understands and agrees that the Owner's payment of amounts under the Agreement between Owner and Contractor is contingent on the Owner receiving appropriations or other expenditure authority sufficient to allow the Owner, in the exercise of reasonable administrative discretion, to continue to make payments under the Agreement.

§ 2.2.2 Unless specifically stated otherwise in the Contract Documents, Contractor shall secure and pay for necessary permits, approvals, assessments, and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. Except for surveys or grade information, the Contractor shall compare the information furnished by the Owner, including, but not limited to, soil tests, with visibly observable physical conditions and the Contract Documents and, on the basis of such review, promptly report to the Owner and the Architect any known conflicts, errors or omissions. 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.

§ 2.2.4 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.

§ 2.2.5 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.

§ 2.3 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.

§ 2.4 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 written 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 deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

§2.5 EXTENT OF OWNER RIGHTS

§ 2.5.1 The rights stated in this Article 2 and elsewhere in the Contract Documents are cumulative and not in limitation of any rights of the Owner (i) granted in the Contract Documents, (ii) at law, or (iii) in equity.

§ 2.5.2 In no event shall the Owner have control over, charge of, or any responsibility for construction means, methods, techniques, sequences, or procedures or for safety precautions and programs in connection with the Work, notwithstanding any of the rights and authority granted the Owner in the Contract Documents.

§ 2.6 OWNER'S RIGHT TO RECORDS

§ 2.6.1 The Contractor's records, which shall include but not be limited to accounting records, written policies and procedures, subcontractor files (including proposals of successful bidders), original estimates, estimating work sheets, correspondence, schedules, change order files (including documentation covering negotiated settlements), and any other supporting evidence necessary to substantiate charges related to this contract (all foregoing hereinafter referred to as "records") and shall be open to inspection and subject to audit and/or reproduction, during normal working hours, by Owner's agent or its authorized representative to the extent necessary to adequately permit evaluation and verification of any invoices, payments or claims submitted by the Contractor or any of his payees. Such records subject to examination shall also include, but not be limited to, those records necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they may apply to costs associated with this Contract.

§ 2.6.2 For the purpose of such audits, inspections, examinations and evaluations, the Owner's agent, or authorized representatives shall have access to said records from the effective date of this Contract for the duration of Work and until three (3) years (or longer if required by law) after the date of final payment by Owner to Contractor.

§ 2.6.3 Owner's agent or its authorized representative shall have access during normal business hours to the Contractor's facilities, shall have access to all necessary records and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this Article 2.6. Owner's agent or authorized representative shall give auditees reasonable advance notice of intended audits.

§ 2.6.4 Contractor shall require all subcontractors, insurance agents, and material suppliers (payees) with cost plus contracts, if permitted, and not fixed price contracts to comply with the provisions of this Article by insertion of the requirements hereof in a written contract agreement between Contractor and payee. Failure to obtain such written contracts which include such provisions shall be reason to exclude some or all of the related payee's costs from amounts payable to the Contractor pursuant to this contract.

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, and if these General Conditions are used in conjunction with the Agreement between Owner and Construction Manager-At-Risk, the term "Contractor" shall mean the Construction Manager.

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

§ 3.1.3 The Contractor shall not be relieved of 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. Prior to execution of the Agreement, the Contractor and each Subcontractor shall have evaluated and satisfied themselves as to the observable conditions and limitations under which the Work is to be performed, including, without limitation, (i) the location, condition, layout, and nature of the Project site and surrounding areas, (ii) generally prevailing climatic conditions, (iii) anticipated labor supply and costs, (iv) availability and cost of materials, tools, and equipment, and (v) other similar issues. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site. Except as set forth in Section 10.3, the Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or the Contract Time in connection with any failure by the Contractor or any Subcontractor to have complied with the requirements of this Section 3.2.1.

§ 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 2.2.3, 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 Owner and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information. 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. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner. The Contractor shall verify the accuracy of elevations, dimensions, locations, and field measurements. In all cases of the interconnection of its Work with existing or other Work, the Contractor shall verify at the site all dimensions relating to such existing or other Work.

.1 All of Contractor's work shall conform to the Contract Documents. Contractor shall be responsible for the details of the Work necessary to carry out the intent of the drawings and specifications, or which are customarily performed. When more detailed information is required for performance of the Work or when an interpretation of the Contract Documents is requested, the Contractor shall submit a written request for information to the Architect or Owner (as required), and the Owner or Architect shall furnish such information or interpretation. Where only part of the Work is indicated, similar parts shall be considered repetitive. Where any detail is shown and components thereof are fully described, similar details not fully described shall be considered to incorporate the fully described details and components.

.2 The Contractor has had an opportunity to examine, and has carefully examined, all of the Contract Documents and Project site, and has fully acquainted itself with the scope of work, design, availability of materials, existing facilities, access, general topography, soil structure, subsurface conditions, obstructions, and all other conditions pertaining to the Work, the site of the Work, and its surrounding; that it has made necessary investigations to a full understanding of the difficulties which may be encountered in performing the Work; and that anything in any Contract Documents, or in any representations, statements, or information made or furnished by Owner or its representatives notwithstanding, Contractor will complete the Work for the compensation stated in the Agreement. In addition thereto, Contractor represents that it is fully qualified to do the Work in accordance with the terms of this Agreement in the time specified.

§ 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 Owner and the Architect any nonconformity discovered by or made known to the Contractor as a request for information.

§ 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 make Claims as provided in Article 15.

§ 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, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and 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 written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required 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.

§ 3.3.4 Inspection of the progress, quantity, or quality of the Work done by the Owner, any Owner's representative, any governmental agency, or the Architect, or any inspector, shall not relieve the Contractor of any responsibility for the compliance of the Work with the Contract Documents. The Owner or its approved representative (heretofore referred to as Owner's representative) shall have access to the worksite and all Work. No supervision or inspection by the Owner's representative, nor the authority to act nor any other actions taken by the Owner's representative shall relieve the Contractor of any of its obligations under the Contract Documents nor give rise to any duty on the part of the Owner.

§ 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.

§ 3.4.1.1 Duty to Pay Prevailing Wage Rates. The Contractor shall pay not less than the wage scale of the various classes of labor as shown on the "Prevailing Wage Schedule" provided by the Owner. The specified wage rates are minimum rates only, and are not representations that qualified labor adequate to perform the Work is available locally at the prevailing wage rates. The Owner is not bound to pay—and will not consider—any claims for additional compensation made by any Contractor because the Contractor pays wages in excess of the applicable minimum rate contained in the Contract Documents. The "Prevailing Wage Schedule" is not a representation that quantities of qualified labor adequate to perform the Work may be found locally at the specified wage rates.

.1 For classifications not shown, workers shall not be paid less than the wage indicated for Laborers. The Contractor shall notify each worker commencing work on the Project the worker's job classification and the established minimum wage rate required to be paid, as well as the actual amount being paid. The notice must be delivered to and signed in acknowledgement of receipt by the employee and must list both the monetary wages and fringe benefits to be paid or furnished for each classification in which the worker is assigned duties. When requested by Owner, competent evidence of compliance with the Texas Prevailing Wage Law shall be furnished by Contractor.

.2 A copy of each worker wage rate notification shall be submitted to the Owner with the Application for Payment for the period during which the worker began on-site activities.

§ 3.4.1.2 Prevailing Wage Schedule. The "Prevailing Wage Schedule" shall be determined by the Owner in compliance with Chapter 2258, Texas Government Code. Should the Contractor at any time become aware that a particular skill or trade not reflected on the Owner's Prevailing Wage Schedule will be or is being employed in the Work, whether by the Contractor or by a subcontractor, the Contractor shall promptly inform the Owner and shall specify a wage rate for that skill or trade, which shall bind the Contractor.

§ 3.4.1.3 Penalty for Violation. The Contractor and any Subcontractor shall pay to the Owner a penalty of sixty dollars ($60.00) for each worker employed for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the Prevailing Wage Schedule or any supplement thereto pursuant to §3.4.1.2. The Contractor and each Subcontractor shall keep, or cause to be kept, an accurate record showing the names and occupations of all workers employed in connection with the Work, and showing the actual per diem wages paid to each worker, which records shall be open at all reasonable hours for the inspection by the Owner.

§ 3.4.1.4 Complaints of Violations of Prevailing Wage Rates. Within 31 days of receipt of information concerning a violation of Chapter 2258 of the Texas Government Code, the Owner shall make an initial determination as to whether good cause exists to believe a violation occurred. The Owner's decision on the initial determination shall be reduced to writing and sent to the Contractor or Subcontractor against whom the violation was alleged, and to the affected worker. When a good cause finding is made, the Owner shall retain the full amounts claimed by the claimant or claimants as the difference between wages paid and wages due under the Prevailing Wage Schedule and any supplements thereto, together with the applicable penalties, such amounts being subtracted from successive progress payments pending a final decision on the violation.

§ 3.4.1.5 Arbitration Required if Violation not Resolved. After the Owner makes its initial determination, the affected Contractor or Subcontractor and worker have 14 days in which to resolve the issue of whether a violation occurred, including the amount that should be retained by Owner or paid to the affected worker. If the Contractor or Subcontractor and affected worker reach an agreement concerning the worker's claim, the Contractor shall promptly notify the Owner in a written document signed by the worker. It the Contractor or Subcontractor and affected worker do not agree before the 15th day after the Owner's determination, the Contractor or Subcontractor and affected worker must participate in binding arbitration in accordance with the Texas General Arbitration Act, Chapter 171, Tex. Civ. Prac. & Rem. Code. The parties to the arbitration have 10 days after the expiration of the 15 days referred to above, to agree on an arbitrator; if by the 11th day there is no agreement to an arbitrator, a district court shall appoint an arbitrator on the petition of any of the parties to the arbitration.

§ 3.4.1.6 Arbitration Award. If an arbitrator determines that a violation has occurred, the arbitrator shall assess and award against the Contractor or Subcontractor the amount of penalty as provided in this Article 3.4 and the amount owed the worker. The Owner may use any amounts retained hereunder to pay the worker the amount as designated in the arbitration award. If the Owner has not retained enough from the Contractor or Subcontractor to pay the worker in accordance with the arbitration award, the worker has a right of action against the Contractor and Subcontractor as appropriate, and the surety of

either to receive the amount owed, attorneys' fees and court costs. The Contractor shall promptly furnish a copy of the arbitration award to the Owner.

§ 3.4.1.7 Prevailing Wage Retainage. Money retained pursuant to this Article 3.4 shall be used to pay the claimant or claimants the difference between the amount the worker received in wages for labor on the Project at the rate paid by the Contractor or Subcontractor and the amount the worker would have received at the general prevailing wage rate as provided by the agreement of the claimant and the Contractor or Subcontractor affected, or in the arbitrator's award. The full statutory penalty of $60.00 per day of violation per worker shall be retained by the Owner to offset its administrative costs, pursuant to Texas Government Code §2258.023. Any retained funds in excess of these amounts shall be paid to the Contractor on the earlier of the next progress payment or final payment. Provided, however, that the Owner shall have no duty to release any funds to either the claimant or the Contractor until it has received the notices of agreement or the arbitration award as provided under §§3.4.2 and 3.4.3.

§ 3.4.1.8 No Extension of Time. If the Owner determines that good cause exists to believe a violation has occurred, the Contractor shall not be entitled to an extension of time for any delay arising directly or indirectly from of the procedures set forth in this Article 3.4.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Owner or Architect in accordance with Sections 3.12.8 or 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. If the Contractor desires to submit an alternate product or method in lieu of what has been specified or shown in the Contract Documents, the Contractor shall comply with the Substitution requirements listed in the Specifications, or if there are no Substitution requirements listed in the Specifications, then the following provisions apply:

§ 3.4.2.1 The Contractor must submit to the Architect and the Owner (i) a full explanation of the proposed substitution and submittal of all supporting data, including technical information, catalog cuts, warranties, test results, installation instructions, operating procedures, and other like information necessary for a complete evaluation of the substitution; (ii) the adjustment, if any, in the Contract Sum, in the event the substitution is acceptable; (iii) the adjustment, if any, in the time of completion of the Contract and the construction schedule in the event the substitution is acceptable; and (v) a statement indicating Contractor accepts the warranty and correction obligations in connection with the proposed substitution as if originally specified by the Architect. Proposals for substitutions shall be to the Architect in sufficient time to allow the Architect no less than ten (10) working days for review. No substitutions will be considered or allowed without the Contractor's submittal of complete substantiating data and information as stated hereinbefore.

§ 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.

§ 3.4.4 The Contractor shall only employ or use labor in connection with the Work capable of working harmoniously with all trades, crafts, and any other individuals associated with the Project.

§ 3.4.5. In case the progress of the Work is affected by any undue delay in furnishing or installing any items or materials or equipment required under the Contract Documents because of such conflict involving any such labor agreement or regulation, the Owner may require that other material or equipment of equal kind and quality be provided pursuant to a Change Order or Construction Change Directive.

§ 3.5 WARRANTY

§ 3.5.1 The Contractor warrants to the Owner: (1) that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise; (2) 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; (3) that the Work will be done strictly in accordance with the Contract Documents; (4) that all products are installed

per the manufacturer's instructions, and in such a way that the manufacturer's warranties are preserved, including the use of a manufacturer-certified installer, if required by the manufacturer; (5) and that the Work, when finally completed, will provide a complete Project that meets the intent of the Contract Documents. The Contractor represents and warrants to the Owner that its materials and workmanship, including without limitation, construction means, methods, procedures and techniques necessary to perform the Work, use of materials, selection of equipment and requirements of product manufacturers are and shall be consistent with: (1) good and sound practices within the construction industry; (2) generally prevailing and accepted industry standards applicable to the Work; (3) requirements of any warranties applicable to the Work subject to Paragraph 3.2.3. Work, materials, or equipment not conforming to these requirements shall be considered defective, and promptly after written notification of non-conformance shall be repaired or replaced by Contractor with Work conforming to this warranty. 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 Owner or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.1.1 Contractor further warrants that all materials or equipment of a category or classification will be a product of the same manufacturer and such materials or equipment shall be of the same lot, batch or type and that such materials and equipment will be as specified.

§ 3.5.2 The Contractor agrees to assign to the Owner at the time of final completion of the Work any and all manufacturer's warranties relating to materials and labor used in the Work and further agrees to perform the Work in such manner so as to preserve any and all such manufacturer's warranties.

§ 3.6 TAXES

State Sales and Use Taxes. Sales, use or similar taxes imposed by a governmental authority that are related to the Work and for which the Contractor is liable; provided, however, Owner is a body corporate and politic under the laws of the State of Texas and claims exemption from sales and use taxes under Texas Tax Code Ann. § 151.309, as amended, and the services and materials subject of the Agreement are being secured for use by Owner. Exemption certificates will be provided to Contractor upon request. As a precondition to the Owner reimbursing Contractor for allowable sales and use taxes, Contractor must, on its own, first attempt to use such tax exemption certificates in order to assert the exemption. In the event Contractor's efforts to use the tax exemption certificate is unsuccessful and provided that under the laws of the State of Texas an exemption from sales and use taxes is allowed, Owner will reimburse Contractor for such sales and use taxes upon Contractor providing sufficient and satisfactory documentation to the Williamson County Auditor.

§ 3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided, the Contractor shall secure, pay for, and, as soon as practicable, furnish the Owner with copies or certificates of all permits and fees, licenses, and inspections necessary for the proper execution and completion of the Work, including, without limitation, all building permits. All connection charges, assessments, or inspection fees as may be imposed by any municipal agency or utility company are included in the Contract Sum and shall be the Contractor's responsibility.

§ 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 and damages resulting therefrom.

§ 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 21 days after first observance of the conditions. The Owner will promptly investigate such conditions and, if the Owner 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 authorize an equitable adjustment in the Contract Sum or Contract Time, or both. If the Owner 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 Owner shall promptly notify the Contractor in writing, stating the reasons. If the Contractor disputes the Owner's determination, the Contractor party may assert 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 Contractor shall, prior to purchasing any such materials, notify the Owner in writing of the cost and whether such cost will exceed the amount of the allowance. If Owner authorizes Contractor to proceed, after receiving the Contractor's estimate of the total cost, then 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.

§ 3.9 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 or Contractor's project manager shall be as binding as if given to the Contractor. Important oral communications shall be immediately confirmed in writing.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Owner or Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Owner and Architect require additional time to review. Failure of the Owner or Architect to reply 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 SCHEDULES

§ 3.10.1 The Contractor, as provided in the Agreement, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be 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, 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.

§ 3.10.4 The construction schedule shall be a detailed precedence-style critical path management ("CPM") schedule in a format satisfactory to the Owner that shall (i) provide a graphic representation of all activities and events that will occur during performance of the Work; (ii) identify each phase of construction and occupancy; and (iii) set forth dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents (hereinafter referred to as the "Milestone Date"). Upon review and acceptance by the Owner of the Milestone Dates, the construction schedule shall be deemed part of the Contract Documents. If not accepted, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and resubmitted for acceptance. The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and shall promptly advise the Owner of any delays or potential delays. The accepted construction schedule shall be updated to reflect actual conditions as set forth in section 3.10.1 or if requested by the Owner. In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary. In no event shall any progress report constitute an adjustment in the Contract Time, any Milestone date, or the Contract Sum unless any such adjustment is agreed to by the Owner and authorize pursuant to a Change Order.

§ 3.10.5 In the event the Owner determines that the performance of the Work, as of a Milestone Date, has not progressed or reach the level of completion required by the Contract Documents, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite the progress of construction, including without limitation, (i) working additional shifts or overtime, (ii) supplying additional manpower, equipment, and facilities, and (iii) other similar measures. Such measures so continue until the progress of the Work complies with the stage of completion required by the Contract Documents. The Owner's right to require such measures is solely for the purpose of ensuring the Contractors compliance with the construction schedule.

§ 3.11 DOCUMENTS AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be 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 the way by which 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 requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing 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 written 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. 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 cause such services or certifications to be provided by a properly 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, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, 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. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 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, and 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 as required by the Contract Documents. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and 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 such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's 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 or 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 Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Owner and Architect shall, at all times, have 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 such 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 the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 INDEMNITY – OTHER THAN EMPLOYEE PERSONAL INJURY CLAIMS. TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR SHALL INDEMNIFY, DEFEND, AND HOLD HARMLESS OWNER, ITS EMPLOYEES, AND ASSIGNS (THE "INDEMNIFIED PARTIES" OR "INDEMNITEES") FROM AND AGAINST CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING BUT NOT LIMITED TO ATTORNEYS' FEES, ARISING OUT OF OR ALLEGED TO BE RESULTING FROM THE PERFORMANCE OF THIS AGREEMENT, TO THE EXTENT CAUSED BY THE NEGLIGENT OR WILLFUL ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, SUB-SUBCONTRACTORS, OR ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THEM OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE. CONTRACTOR SHALL NOT BE REQUIRED TO INDEMNIFY, HOLD HARMLESS OR DEFEND THE INDEMNIFIED PARTIES AGAINST A CLAIM CAUSED BY THE NEGLIGENCE OR FAULT, OR THE BREACH OR VIOLATION OF A STATUTE, ORDINANCE, GOVERNMENTAL REGULATION, STANDARD, OR RULE OF THE INDEMNITEE, OR OTHER PARTY OTHER THAN CONTRACTOR OR ITS AGENT, EMPLOYEE, OR SUBCONTRACTOR OF ANY TIER, EXCEPT THAT CONTRACTOR SHALL INDEMNIFY, HOLD HARMLESS AND DEFEND THE INDEMNIFIED PARTIES AGAINST ANY CLAIMS FOR THE BODILY INJURY OR DEATH OF AN EMPLOYEE OF CONTRACTOR, ITS AGENTS, OR IT SUBCONTRACTORS OF ANY TIER.

§3.18.2 INDEMNITY – EMPLOYEE <u>PERSONAL INJURY CLAIMS</u>. TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR SHALL INDEMNIFY, DEFEND, AND HOLD HARMLESS THE INDEMNIFIED PARTIES AND SHALL ASSUME ENTIRE RESPONSIBILITY AND LIABILITY (OTHER THAN AS A RESULT OF AN INDEMNIFIED PARTY'S GROSS NEGLIGENCE) FOR ANY CLAIM OR ACTION BASED ON OR ARISING OUT OF THE PERSONAL INJURY, INCLUDING THE DEATH, OF ANY EMPLOYEE OF THE CONTRACTOR, SUBCONTRACTORS, OR ANY SUB-SUBCONTRACTOR, OR OF ANY OTHER ENTITY FOR WHOSE ACTS THEY MAY BE LIABLE, WHICH OCCURRED OR WAS ALLEGED TO HAVE OCCURRED ON THE PROJECT SITE OR IN CONNECTION WITH THE PERFORMANCE OF THE WORK OF THIS AGREEMENT. CONTRACTOR HEREBY INDEMNIFIES THE INDEMNIFIED PARTIES EVEN TO THE EXTENT THAT SUCH PERSONAL INJURY WAS CAUSED OR ALLEGED TO HAVE BEEN CAUSED BY THE COMPARATIVE OR CONCURRENT NEGLIGENCE OF THE STRICT LIABILITY OF ANY INDEMNIFIED PARTY. THIS INDEMNIFICATION SHALL NOT BE LIMITED TO DAMAGES, COMPENSATION, OR BENEFITS PAYABLE UNDER INSURANCE POLICIES, WORKERS COMPENSATION ACTS, DISABILITY BENEFITS ACTS, OR OTHER EMPLOYEES BENEFIT ACTS.

§3.18.3 THE CONTRACTOR'S INDEMNITY OBLIGATIONS UNDER THIS SECTION 3.18 SHALL ALSO SPECIFICALLY INCLUDE, WITHOUT LIMITATION, ALL FINES, PENALTIES, DAMAGES, LIABILITY, COSTS, EXPENSES (INCLUDING, WITHOUT LIMITATION, REASONABLE ATTORNEYS' FEES) ARISING OUT OF, OR IN CONNECTION WITH, ANY (I) VIOLATION OF OR FAILURE TO COMPLY WITH ANY LAW, STATUTE, ORDINANCE, RULE, REGULATION, CODE OR REQUIREMENT OF A PUBLIC AUTHORITY THAT BEARS UPON THE PERFORMANCE OF THE WORK BY THE CONTRACTOR, A SUBCONTRACTOR, OR ANY PERSON OR ENTITY FOR WHOM EITHER IS RESPONSIBLE, (II) MEANS, METHODS, PROCEDURES, TECHNIQUES, OR SEQUENCES OF EXECUTION OR PERFORMANCE OF THE WORK, AND (III) FAILURE TO SECURE AND PAY FOR PERMITS, FEES, APPROVALS, LICENSES, AND INSPECTIONS AS REQUIRED UNDER THE CONTRACT DOCUMENTS, OR ANY VIOLATION OF ANY PERMIT OR OTHER APPROVAL OF A PUBLIC AUTHORITY APPLICABLE TO THE WORK, BY THE CONTRACTOR, A SUBCONTRACTOR, OR ANY PERSON OR ENTITY FOR WHOM EITHER IS RESPONSIBLE.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 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.

§ 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 Owner-Architect Agreement. 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, except as provided in Section 3.3.1.

§ 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 report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. 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 AND CONTRACT ADMINISTRATION
Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to relate relevant communications between Owner and Architect to the Architect. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 If included in Architect's scope of work, the agreement between Owner and Architect, or if requested by the Owner, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts based on the Architect's evaluations of the Contractor's Applications for Payment.

§ 4.2.6 To the extent permitted by the agreement between Owner and Architect, 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, in consultation with the Owner, will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such 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 or the Owner to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 To the extent provided in the agreement between Owner and Architect, 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 Owner and 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, unless otherwise specifically stated by the Architect, 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 If requested by Owner, the Architect will prepare Change Orders and Construction Change Directives with the Owner's prior written consent, but the Architect may authorize minor changes in the Work as provided in the agreement between Owner and Architect, or in Section 7.4 of these General Conditions. If requested by Owner, the Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 If requested by Owner, 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 duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 If requested by Owner, 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.

§ 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, and if approved by Owner.

§ 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 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

§ 5.2.1 For Construction Manager-At-Risk Agreements. The Construction Manager shall publicly advertise for bids or proposals and receive bids or proposals from trade contractors or Subcontractors for the performance of all major elements of the work other than the minor work that may be included in the general conditions. The Construction Manager may seek to perform portions of the work itself if:

(A) the Construction Manager submits its bid or proposal for those portions of the Work in the same manner as all other trade contractors or Subcontractors; and

(B) the Owner determines that the Construction Manager's bid or proposal provides the best value for the Owner.

§ 5.2.1.1 REVIEW OF BIDS OR PROPOSALS. Construction Manager shall review all trade contractor or Subcontractor bids or proposals in a manner that does not disclose the contents of the bid or proposal during the selection process to a person not employed by the Construction Manger, Architect, Engineer, or Owner. All bids or proposals shall be made available to the Owner on request and to the public after the later of the award of the contract or the seventh day after the date of final selection of bids or proposals. If the Construction Manager reviews, evaluates, and recommends to the Owner a bid or proposal from a trade contractor or subcontractor but the Owner requires another bid or proposal to be accepted, the Owner shall compensate the Construction Manager by a change in the Contract Sum, Contract Time, or Cost of the Work for any additional cost and risk that the Construction manager incurs because of the Owner's requirement that another bid or proposal be accepted.

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

§ 5.2.3 If the Owner has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time may 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 previously selected if the Owner makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

§ 5.3.1 By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner. 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.

§ 5.3.2 All subcontracts shall be in writing and, if requested, Contractor shall provide Owner with copies of executed subcontracts.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS
§ 5.4.1 This Contract is for Owner's benefit, its successors and assigns who, as well as Contractor, may directly enforce all rights and warranties, express or implied herein, but Subcontractors shall have recourse only against Contractor and not against Owner. Owner may rely solely upon Contractor for enforcement of all Subcontracts. To effect such purpose, Contractor assigns to Owner all right to bring any actions against subcontractors and material vendors without waiver by Owner of his right against Contractor because of defaults, delays and effects for which a subcontractor or material vendor may also be liable, said assignment being effective only if:

.1 Contractor is in default under the Contract Documents; or

.2 Owner has terminated the Contract in accordance with the Contract Documents; and

.3 Only for those subcontract agreements which the Owner accepts by notifying the Subcontractor and Contractor in writing; and

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

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

§ 5.4.3 Upon such 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.

§5.4.4 The Architect and the Owner shall have the right to request from any Subcontractor at any time during the course of construction, a notarized affidavit stating the amount of monies which have been paid to the Subcontractor as of any certain stipulated date.

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 Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 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 Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the 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.

§ 6.2 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 report to the Architect and the Owner apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report 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, except as to defects not then reasonably discoverable.

§ 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 the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner, separate contractors 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 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 Owner or Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work. Except as permitted in Section 7.3 and Section 9.7.2, a change in the Contract Sum or the Contract Time shall be accomplished only by Change Order. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that Owner has been unjustly enriched by any alteration of or addition to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be the basis of any Claim to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

§ 7.2 CHANGE ORDERS
§ 7.2.1 A Change Order is a written instrument 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.

§ 7.2.2 Contractor's Change Order shall set forth in clear and precise detail breakdowns of labor and materials for all trades involved and the estimated impact on the dates of Substantial Completion. Contractor shall furnish supporting data as reasonably requested by Owner.

§ 7.2.3 Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the construction schedule.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order 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 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 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.

§ 7.3.6 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.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Owner shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in 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 Owner or Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

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

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

§ 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 Owner or 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 Owner will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Owner determines to be reasonably justified. The Owner's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of Contractor to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made 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

If permitted in the agreement between Owner and Architect, the Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents.

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 and are a material element 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, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 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 an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect and Owner determines may justify delay, then the Contract Time shall be extended by Change Order to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time and if the performance of the Work is not, was not, or would not have been delayed by any other cause for which the Contractor is not entitled to an extension in the Contract Time under the Contract Documents. The Contractor further acknowledges and agrees that adjustments in the Contract Time will be permitted for a delay only to the extent such delay (i) is not caused, or could not have been anticipated, by the Contractor, and (ii) could not be limited or avoided by the Contractor's timely notice to the Owner of the delay or reasonable likelihood that a delay will occur.

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

§ 8.3.3 Notwithstanding anything contained in the Contract Documents to the contrary, the Contractor's sole remedy for any (1) delay in the commencement, prosecution or completion of the Work, (2) hindrance or obstruction in the performance of the Work, (3) loss of productivity, or (4) other similar claims (collectively referred in this Subparagraph 8.3.3 as "Delay or Delays"), whether or not such Delays are foreseeable, shall be an extension of time in which to complete the Work. In no event shall the Contractor be entitled to any other compensation or recovery of any damages, costs, or attorneys' fees, caused by any Delays, unknown site conditions, errors, inconsistencies, or omissions in the Drawings and Specifications, or concealed or unknown conditions, including, without limitation, consequential damages, lost opportunity costs, impact damages or other similar damages; provided however that Contractor may be entitled to additional time as provided under Section 8.3.1.

§ 8.3.4 If the Contractor submits a progress report indicating, or otherwise expresses an intention to achieve, completion of the Work prior to any completion date required by the Contract Documents or expiration of the Contract Time, no liability of the Owner to the Contractor for any failure of the Contractor to so complete the Work shall be created or implied.

§ 8.3.5 Owner shall have the right to occupy, without prejudice to rights of either party, any completed or substantially completed portions of the Work, notwithstanding the fact that time for completion of entire Work, or portions thereof, may not be expired. Occupancy and use by Owner shall not constitute, in itself, acceptance of the Work.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

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.

§ 9.2 SCHEDULE OF VALUES

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

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 As provided in the Agreement and in the Contract Documents, the Contractor shall submit to the Owner and Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2., for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the

Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage 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 Owner or 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 material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.1.3 If requested by Owner or required elsewhere in the Contract Documents, Each Application for Payment shall be accompanied by the following, all in a form and substance satisfactory to the Owner:

(i) With each Application for Payment: a current Sworn Statement from the Contractor setting forth all Subcontractors and all material suppliers with whom the Contractor has subcontracted, the amount of each such subcontract, the amount requested for any Subcontractor or material supplier in the Application for Payment, and the amount to be paid to the Contractor from such progress payment;

(ii) With each Application for Payment: a duly executed Conditional Waiver and Release on Progress Payment from the Contractor and Subcontractors establishing receipt of payment or satisfaction of the payment requested by the Contractor in the current Application for Payment;

(iii) Commencing with the second Application for Payment submitted by the Contractor, a duly executed Unconditional Waiver and Release on Progress Payment from Contractor and all Subcontractors, material suppliers and, where appropriate, lower tier subcontractors that have billed more than $5,000 on a single application of payment, establishing receipt of payment or satisfaction of payment of all amounts requested on behalf of such entities and disbursed prior to submittal by the Contractor of the current Application for Payment;

(iv) With the Final Application for Payment: Contractor shall submit a Conditional Waiver and Release on Final Payment as required by Texas Property Code 53.284. Upon receipt of final payment, Contractor shall submit an Unconditional Waiver and Release on Final Payment as required by Texas Property Code 53.284; and

(v) Such other information, documentation, and materials as the Owner, or the title insurer may require in order to ensure that Owner's property is free of lien claims. Such other documents may include, without limitation, original copies of lien or bond claim releases suitable for filing with the County Clerk in Williamson County, Texas.

§ 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, bond claims, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.3.3.1 The Contractor further expressly undertakes to defend Owner, at the Contractor's sole expense, against any actions, lawsuits, or proceedings brought against Owner as a result of liens filed against the Work, the site of any of the Work, the Project site and any improvements thereon, or any portion of the property of any of Owner (referred to collectively as "liens" in this Section 9.3.3), provide the Owner has paid Contractor pursuant to the requirements of the Contract Documents. The Contractor hereby agrees to indemnify and hold Owner harmless against any such liens or claims of lien and agrees to pay any judgment or lien resulting from any such actions, lawsuits, or proceedings.

§ 9.3.3.2 The Owner shall release any payments withheld due to a lien or bond claims if the Contractor obtains security acceptable to the Owner, however, the Contractor shall not be relieved of any responsibilities or obligations under this Section 9.3.3, including, without limitation, the duty to defend and indemnify Owner.

§ 9.3.3.3 Retainage. The Owner shall withhold from each progress payment, as retainage, five percent (5%) of the total earned amount. Retainage so withheld shall be managed in conformance with Subchapter B, Chapter 2252 of the Texas Government Code. Any request for reduction or release of retainage shall be accompanied by written consent of the Contractor's Surety. No such request shall be made until the Contractor has earned at least sixty-five percent (65%) of the total Contract Price.

§ 9.3.3.4 For purposes of Texas Government Code § 2251.021 (a)(2), the date the performance of service is completed is the date when the Owner's representative approves the Application for Payment.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part 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 comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. 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. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. 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 material 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 Owner or Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Owner or Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Owner or Architect is unable to certify payment in the amount of the Application, the Owner or Architect will notify the Contractor. If the Contractor and Architect, or Contractor and Owner, as the case may be, cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount that can be certified. The Owner or 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 Owner or 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;
.3 failure of the Contractor to make payments properly to Subcontractors or 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 failure to maintain the scheduled progress, or reasonable evidence that the Work will not be completed within the Contract Time;
.7 failure to comply with the requirements of Texas Government Code Chapter 2258 (Prevailing Wage Law);
.8 failure to include sufficient documentation to support the amount of payment requested for the Project;
.9 failure to obtain, maintain, or renew insurance coverage, payment/performance bonds or warranty bond required by the Contract Documents; or
.10 repeated failure to carry out the Work in accordance with the Contract Documents.

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

§ 9.6 PROGRESS PAYMENTS
§ 9.6.1 The Owner shall make payment in the manner and within the time provided in the Contract Documents and in accordance with Chapter 2251 of the Texas Government Code.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than 10 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 Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment 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 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, except as may otherwise be required by law.

§ 9.6.4 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2.

§ 9.6.5 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.

§ 9.7 FAILURE OF PAYMENT
§ 9.7.1 If the Architect is required to issue Certificates for Payment and, through no fault of the Contractor, the Architect fails to timely issue Certificates for Payment in the time permitted in the Contract Documents, or if the Owner does not pay the Contractor by the date established in the Contract Documents, then the Contractor may, upon twenty-one days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received.

§ 9.7.2 If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due the Owner, or if the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective work, the Owner shall have an absolute right to offset such amount against the Contract Sum and may, in the Owner's sole discretion, elect either to (i) deduct

an amount equal to that which the Owner is entitled from any payment then or thereafter due the Contractor from the Owner, or (ii) issue a written notice to the Contractor reducing the Contract Sum by an amount equal to that which the Owner is entitled.

§ 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; provided, however, that as a condition precedent to Substantial Completion, the Owner has received all certificates of occupancy and any other permits, approvals, licenses, and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial occupancy of the Project.

§ 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 Owner and Architect a comprehensive list of items to be completed or corrected prior to final payment (punch list). Failure to include an item on the punch 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 punch list, the Owner and Architect will examine the Work to determine whether the Work or designated portion thereof is substantially complete. If the Owner and/or Architect's examination discloses any item, whether or not included on the Contractor's punch list, that is not sufficiently complete in accordance with the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Owner or Architect. In such case, the Contractor shall then submit a request for another examination by the Owner or Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect, if required by the Contract Documents, or Owner will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Unless otherwise provided, Contractor shall complete all items on the punch list within 30 days of Substantial Completion. 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 such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage.

§ 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 as required under Section 11.3.1.5, the surety, 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.

§ 9.9.2 Immediately prior to 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 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 written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner and Architect will make such inspection and, when the Owner and Architect find the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. All warranties and guarantees required under or pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Architect as part of the final Application for Payment. The final Certificate for Payment will not be issued by the Architect until all warranties and guarantees have been received and accepted by the Owner.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner and Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied, within the period of time required by Chapter 2251 of the Texas Government Code, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety to final payment, (5) a warranty bond in a form acceptable to Owner, and (6) other data establishing payment or satisfaction of obligations, such as receipts, unconditional full and final 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.

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

.1 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; or
.3 terms of warranties required by the Contract Documents.

§ 9.10.4 Acceptance of final payment by the Contractor, a Subcontractor or material 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 or the Contractor's Subcontractors or Sub-subcontractors; 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. Notwithstanding any language to the contrary, the Owner shall not have any responsibility for job site inspections or safety recommendations. Any inspections or observations by the Owner or the Architect are solely for the benefit of the Owner and shall not create any duties or obligations to anyone else.

§ 10.2.3 The Contractor shall 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 owners and users of adjacent sites and utilities.

§ 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, except damage or loss 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, written notice of such 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.

§ 10.2.9 When all or a portion of the Work is suspended for any reason, the Contractor shall securely fasten down all covering and fully protect the Work, as necessary, from injury or damage by any cause.

§ 10.2.10 The Contractor shall promptly report in writing to the Owner and Architect all accidents arising out of or in connection with the Work that cause death, personal injury, or property damage.

§ 10.3 HAZARDOUS MATERIALS
§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. 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 report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written 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. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written notice from the Owner.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are expressly required by the Contract Documents. The Owner shall be responsible for materials or substances expressly 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 indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site or 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.

§ 10.4 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, if any, 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 LIABILITY INSURANCE
§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

.1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
.4 Claims for damages insured by usual personal injury liability coverage;
.5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
.6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
.7 Claims for bodily injury or property damage arising out of completed operations, which coverage shall be maintained for no less than four (4) years following final payment; and
.8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Agreement or the Contract Documents. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the

period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Unless otherwise provided, copies of the insurance policies, in form acceptable to the Owner, shall provided to Owner within 30 days of Owner's request. Except as otherwise provided, all of the policies provided shall name Owner as an additional insured, and such policies shall immediately deliver to Owner copies of all such insurance policies, together with certificates by the insurer evidencing Owner's coverage there under. Each policy of insurance obtained by Contractor pursuant to the Contract Documents shall provide, by endorsement or otherwise (i) that such policy shall not be canceled, endorsed, altered or reissued to effect a change in coverage for any reason or to any extent whatsoever unless the insurer shall have first given Owner and Lender at least thirty (30) days prior written notice thereof, and (ii) that Owner may, but shall not be obligated to, make premium payments to prevent the cancellation, endorsement, alteration or reissuance of such policy and such payments shall be accepted by the insurer to prevent the same. Such policies shall provide, by endorsement or otherwise, that Contractor shall be solely responsible for the payment of all premiums under the policies, and that Owner shall have no obligation for the payment thereof, notwithstanding that Owner is named as additional insured under the policy. Any insured loss or claim of loss shall be adjusted to the Owner, and any settlement payments shall be made payable to the Owner as a trustee for the insureds, as their interests may appear. Upon the occurrence of an insured loss or claim of loss, monies received will be held by Owner who shall make distribution in accordance with an agreement to be reached in such event between Owner and Contractor. If the parties are unable to agree between themselves on the settlement of the loss, such dispute shall be resolved in accordance with section 15, below, but the Work of the Project shall nevertheless progress during any such period of dispute without prejudice to the rights of any party to the dispute. The Contractor shall be responsible for any loss within the deductible area of the policy. If Owner is damaged by the failure of Contractor to purchase or maintain such insurance, then Contractor shall bear all costs properly attributable thereto. The Contractor shall affect and maintain similar property insurance on portions of the Work stored off the site or in transit when such portions of the Work are to be included. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until Final Completion of the Project.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner 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 during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE
The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE
§ 11.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake,

flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss as well as coverage for building materials while in transit or building materials suitably stored at a temporary location. Property insurance provided by the Contractor shall not cover any tools, apparatus, machinery, scaffolding, hoists, forms, staging, shoring, and other similar items commonly referred to as construction equipment that may be on the site and the capital value of which is not included in the Work. The Contractor shall make its own arrangements for any insurance it may require on such construction equipment. Any such policy obtained by the Contractor under this Section 11.3.1 shall include a waiver of subrogation in accordance with the requirements of Section 11.3.4.

§ 11.3.1.2 If the Contractor does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Contractor shall so inform the Owner in writing prior to commencement of the Work. If the Owner is damaged by the failure or neglect of the Contractor to purchase or maintain insurance as described above, without so notifying the Owner in writing, then the Contractor shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 Contractor shall be responsible for any deductibles to the extent that the loss arose out of or was cause by Contractor's negligence or breach of the Agreement.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.4 WAIVERS OF SUBROGATION
The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent of actual recovery of any insurance proceeds under any property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance. However, this waiver shall not apply to property insurance purchased by Owner after completion of the Work or Final Payment, whichever comes first. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.5 A loss insured under the property insurance shall be adjusted in good faith and made payable to the Owner in good faith for the insureds, as their interests may appear. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.4 BONDS
§ 11.4.1 The Contractor is required to tender to Owner, prior to commencing the Work, performance and payment bonds, as required by law. In the event Contractor fails to provide such bonds within the time

provided by the Agreement, Owner may immediately, upon notice of such failure, or within a reasonable time thereafter, at its sole option and discretion: (1) void this Agreement in its entirety; or (2) procure such bonds on behalf of the Contractor, deducting such amounts from the Contract Price. In the event Owner voids the Agreement under this section, Contractor may forfeit its bid bond.

§ 11.4.2 A Performance Bond is required if the Contract Price is in excess of $50,000. The performance bond is solely for the protection of the Owner, in the full amount of the Contract Price and conditioned on the faithful performance of the Work in accordance with the Contract Documents. The form of the bond shall be approved by the Owner.

§ 11.4.3 A Payment Bond is required if the Contract Price is in excess of $25,000. A payment bond is payable to the Owner, in the full amount of the Contract Price and solely for the protection and use of payment bond beneficiaries who have a direct contractual relationship with the Contractor or a supplier of required materials or labor. The form of bond shall be approved by the Owner.

§ 11.4.4 Warranty Bond. Upon Substantial Completion and prior to final completion and final payment, Contractor shall provide Owner with a Warranty Bond in the sum of 10% of the Contact Price or 10% of the Guaranteed Maximum Price for Construction Manager-At-Risk Agreements for the entire warranty period set out in the Contract Documents. The form of bond shall be approved by the Owner.

§ 11.4.5 Corporate sureties authorized to issue bonds shall be qualified and comply with relevant provisions of the Texas Insurance Code.

§ 11.4.6 Each bond shall be executed by a corporate surety or sureties authorized to do business in the State of Texas and acceptable to the Owner. If any bond is for more than 10 percent of the surety's capital and surplus, the Owner may require certification that the company has reinsured the excess portion with one or more reinsurers authorized, accredited, or trusteed to do business in the State. A reinsurer may not reinsure for more than 10 percent of its capital and surplus. If a surety upon a bond loses its authority to do business in the State, the Contractor shall within thirty (30) days after such loss furnish a replacement bond at no added cost to the Owner.

§ 11.4.7 Each bond shall be accompanied by a valid Power-of-Attorney (issued by the surety company and attached, signed and sealed with the corporate embosses seal, to the bond) authorizing the attorney in fact who signs the bond to commit the company to the terms of the bond, and stating any limit in the amount for which the attorney can issue a single bond.

§ 11.4.8 The process of requiring and accepting bonds and making claims thereunder shall be conducted in compliance with Chapter 2253, Texas Government Code. If for any reason a statutory payment or performance bond is not honored by the surety, the Contractor shall fully indemnify and hold the Owner harmless of and from any costs, losses, obligations or liabilities it incurs as a result.

§ 11.4.9 Owner shall furnish certified copies of a payment bond and the related Agreement between Owner and Contractor to any qualified person seeking copies who complies with §2253.026, Texas Government Code.

§ 11.4.10 Claims on Payment Bonds. Claims on payment bonds must be sent directly to the Contractor and its surety in accordance with § 2253.041, Texas Government Code. All Payment Bond claimants are cautioned that no lien exists on the funds unpaid to the Contractor on such contract, and that reliance on notices sent to the Owner may result in loss of their rights against the Contractor and/or its surety. The Owner is not responsible in any manner to a claimant for collection of unpaid bills, and accepts no such responsibility because of any representation by any agent or employee.

§ 11.4.11 Payment Claims when Payment Bond not Required. When the value of the Agreement between Owner and the Contractor is less than $25,000.00, claimants and their rights are governed by Texas Property Code, §§ 53.231 – 53.239. These provisions set out the requirements for filing a valid

lien on funds unpaid to the Contractor as of the time of filing the claim, actions necessary to release the lien and satisfaction of such claims.

§11.4.12 Sureties shall be listed on the Department of the Treasury's Listing of Approved Sureties stating companies holding Certificates of Authority as acceptable sureties on Federal Bonds and acceptable reinsuring companies (Department Circular 570).

§ 11.5 GENERAL REQUIREMENTS
§ 11.5.1 Unless otherwise provided in the Contract Documents, all insurance coverage procured by the Contractor shall be provided by insurance companies having policy holder ratings no lower than "A" and financial ratings not lower than "XII" in the Best's Insurance Guide, the latest edition in effect as of the date of the Contract, and subsequently in effect at the time of renewal of any policies required by the Contract Documents.

§ 11.5.2 If the Owner is damaged by failure of the Contractor to purchase or maintain insurance required under Article 11, then the Contractor shall bear all reasonable costs (including attorneys' fees and court and settlement expenses) properly attributable thereto.

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 Owner or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Owner or Architect, be uncovered for examination and be replaced at the Contractor's expense without change in the Contract Time. If prior to the date of Substantial Completion the Contractor, a Subcontractor, or anyone for whom either is responsible uses or damages any portion of the Work (other than start-up), including, without limitation, mechanical, electrical, plumbing, and other building systems, machinery, equipment, or other mechanical device, the Contractor shall cause such item to be restored to "like new" condition at no expense to the Owner.

§ 12.1.2 If a portion of the Work has been covered that the Owner or Architect has not specifically requested to examine prior to its being covered, the Owner or 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, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK
§ 12.2.1 The Contractor shall promptly correct Work rejected by the Owner or Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after 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 an 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 written notice from the Owner to do so. The Owner shall give such notice promptly after discovery of the condition. 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, without prejudice to any other remedies, correct it in accordance with Section 2.4 or file a claim with the surety of any applicable warranty bond.

§ 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.

§ 12.2.3 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, whether completed or partially completed, of the Owner or separate contractors 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 Williamson County, Texas.

§ 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 the Contract Documents or by law, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.3 WRITTEN NOTICE
Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES
§ 13.4.1 Except as expressly provided in the Contract Documents, 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.

§ 13.4.2 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 there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS
§ 13.5.1 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. The Contractor shall give the Owner and Architect timely notice of when and where tests and inspections are to be made so that the Owner and Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 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 13.5.1, 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 Owner and Architect of when and where tests and inspections are to be made so that the Owner and Architect may be present for such procedures.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 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. The Contractor also agrees the cost of testing services related to remedial operations performed to correct deficiencies in the Work, shall be borne by the Contractor.

§ 13.5.4 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 Owner and Architect.

§ 13.5.5 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.

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

§ 13.6 INTEREST
The rate of interest that accrues on an overdue payment is the rate in effect on September 1 of the fiscal year in which the payment becomes overdue. The rate in effect on September 1 is equal to the sum of:
(1) one percent; and
(2) the prime rate as published in the Wall Street Journal on the first day of July of the preceding fiscal year that does not fall on a Saturday or Sunday pursuant to §2251.025 of the Texas Government Code.

§ 13.7 TIME LIMITS ON CLAIMS
The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the time limits provided by law. Nothing herein shall be construed as shortening the period of time Owner has for commencing claims to less than what is required by law.

§ 13.8 Application To Subcontracts
Any specific requirement in this Contract that the responsibilities or obligations of Contractor also apply to a Subcontractor is added for emphasis and are also hereby deemed to include a Subcontractor of any tier. The omission of a reference to a Subcontractor in connection with any of Contractor's responsibilities or obligations shall not be construed to diminish, abrogate or limit any responsibilities or obligations of a Subcontractor of any tier under the Contract Documents or the applicable subcontract.

§ 13.10 GENERAL PROVISIONS
§ 13.10.1 All personal pronouns used in this Contract, whether used in the masculine, feminine, or neuter gender, shall include all other genders; and the singular shall included the plural and vice versa. Titles of articles, sections, and subsections are for convenience only and neither limit nor amplify the provisions of this Contract. The use herein of the word "including," when following any general statement, term, or matter, shall not be construed to limit such statement, term, or matter to the specific items or matters set

forth immediately following such word or to similar items or matters, whether or not non-limiting language (such words as "without limitation," or "but not limited to," or words of similar import) is used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably fall within the broadest possible scope of such general statement, term, or matter.

§ 13.10.2 Wherever possible, each provision of this Agreement shall be interpreted in a manner as to be effective and valid under applicable law. If, however, any provision of this Agreement, or portion thereof, is prohibited by law or found invalid under any law, only such provision or portion thereof shall be ineffective, without in any manner invalidating or affecting the remaining provisions of this Agreement or valid portions of such provision, which are hereby deemed servable.

§ 13.11 NO ORAL WAIVER
The Provisions of the Contract Documents shall not be changed, amended, waived, or otherwise modified in any respect except by a writing signed by Owner. No person is authorized on behalf of Owner to orally change, amend, waive, or otherwise modify the terms of the Contract Documents or any of the Contractor's duties or obligations under or arising out of the Contract Documents. Any change, waiver, approval, or consent granted to the Contractor shall be limited to the specific matters stated in the writing signed by Owner, and shall not relieve Contractor of any other of the duties and obligations under the Contract Documents. No "constructive" changes shall be allowed.

§ 13.12 Texas Public Information Act. To the extent, if any, that any provision in the Contract Documents is in conflict with Tex. Gov't Code 552.001 et seq., as amended (the "Public Information Act"), the same shall be of no force or effect. Furthermore, it is expressly understood and agreed that Owner, its officers and employees may request advice, decisions and opinions of the Attorney General of the State of Texas in regard to the application of the Public Information Act to any information or data furnished to Owner whether or not the same are available to the public. It is further understood that Owner, its officers and employees shall have the right to rely on the advice, decisions and opinions of the Attorney General, and that Owner, its officers and employees shall have no liability or obligation to Contractor for the disclosure to the public, or to any person or persons, of any software or a part thereof, or other items or data furnished to Owner by Contractor in reliance of any advice, decision or opinion of the Attorney General of the State of Texas.

§ 13.13 Equal Opportunity in Employment. The Contractor agrees that during the performance of the Agreement it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Parties will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; termination; rates of pay or other forms of compensation, and selection for training, including apprenticeship.

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 90 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

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

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

.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 an undisputed Certificate for Payment within the time stated in the Contract Documents.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, 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 30 days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 fails to commence the Work in accordance with the provisions of this Contract,

.2 fails to prosecute the Work to completion thereof in a diligent, efficient, timely, workmanlike, skillful and careful manner and in strict accordance with the provisions of the Contract,

.3 fails to use an adequate amount or quality of personnel or equipment to complete the Work without undue delay,

.4 fails to perform any of its obligations under the Contract,

.5 fails to make prompt payments when due to its Subcontractors and Suppliers, or as required by Texas Government Code 2251,

.6 files any petition or other pleading seeking any relief under any provisions of the Federal Bankruptcy Act, as amended, or any other federal or state statute or law providing for reorganization of debts or other relief from creditors, permits a receiver or other person to be appointed on account of its insolvency or financial condition, or becomes insolvent,

.7 creates any situation or state of facts which would authorize or permit an involuntary petition in bankruptcy to be filed against Contractor, or

.8 has not met or in Owner's opinion will not meet the dates of Substantial Completion set forth in the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, in its sole and absolute discretion, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, 30 days' written 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. In the event that a final decision under section 15, below, is rendered that sufficient cause did not exist for termination under this section 14.2, then the termination shall be considered a termination for convenience, under section 14.4, below.

§ 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 and costs incurred by the Owner in finishing the Work 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.

§ 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 as described in 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 written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

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

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; 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 Upon such termination, the Contractor shall recover the amounts provided in Section 10.1.3 of 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, 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.

§ 15.1.2 NOTICE OF CLAIMS

Claims for events arising during the performance of the Work by Contractor must be initiated by written notice to the other party with a copy sent to the Architect; provided, however, that the claimant shall use its best efforts to furnish the other party, as expeditiously as possible, with notice of any Claim including, without limitation, those in connection with concealed or unknown conditions, once such claim is recognized, and shall take steps to mitigate the alleged or potential damages, delay, or other adverse consequences arising out of the condition that is the cause of such a Claim. Claims by Contractor must be initiated within 10 business days after occurrence of the event giving rise to such Claim or within 10 business days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims may also be reserved in writing within the time limits set forth in this Section 15.1.2. Any notice of Claim or reservation of Claim must clearly identify the alleged cause and the nature of the Claim and include data and information available to the claimant that will facilitate prompt verification and evaluation of the Claim.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

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. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the Contract Documents.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST
If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME
§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein 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.

§ 15.1.5.2 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.

§ 15.3 MEDIATION
§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived shall be subject to mediation as a condition precedent to seeking redress in a court of competent jurisdiction.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation, which shall consist of a single mediator who is knowledgeable about the subject matter of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in Williamson County, Texas. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§15.3.4 All disputes not resolved through mediation shall be decided in litigation in Williamson County, Texas.

§ 15.3.5 No waiver of Immunity. Nothing in the Contract Documents shall be deemed to waive, modify or amend any legal defense available at law or in equity to Owner, its past or present officers, employees, or agents, nor to create any legal rights or claim on behalf of any third party. Owner does not waive, modify, or alter to any extent whatsoever the availability of the defense of governmental immunity under the laws of the State of Texas and of the United States.

PROPOSAL AFFIDAVIT

This form must be completed, signed, notarized and returned with Proposal package

The undersigned attests that the company named below, under the provisions of Subtitle F, Title 10, Texas Government Code Chapter 2270:

1. Does not boycott Israel currently; and
2. Will not boycott Israel during the term of the contract.

Pursuant to Section 2270.001, Texas Government Code:

1. "Boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes; and
2. "Company" means a for-profit sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, or any limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of those entities or business associations that exist to make a profit

The undersigned certifies that the RFSCP and the Respondent's Proposal have been carefully reviewed and are submitted as correct and final. Respondent further certifies and agrees to furnish any and/or all goods and/or services upon which prices are extended at the price Proposal, and upon the conditions contained in the RFSCP.

I hereby certify that the foregoing Proposal has not been prepared in collusion with any other Respondent or other person or persons engaged in the same line of business prior to the official opening of this Proposal. Further, I certify that the Respondent is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities Proposal on, or to influence any person or persons to submit a Proposal or not to submit a Proposal thereon."

Name of Respondent:	
Address of Respondent:	
Email:	
Telephone:	
Printed Name of Person Submitting Affidavit:	
Signature of Person Submitting Affidavit:	

Cooperative Purchasing Program

Check one of the following options below. A non-affirmative Proposal will in no way have a negative impact on the County's evaluation of the Proposal.

☐	I will offer the quoted prices to all authorized entities during the term of the County's Contract.
☐	I will not offer the quoted prices to all authorized entities.

***If no box is checked, the Respondent agrees to make best efforts in good faith to offer the quoted prices to all authorized entities. ***

BEFORE ME, the undersigned authority, a Notary Public, personally appeared _____ (*Name of Signer*), who after being by me duly sworn, did depose and say: "I, _____, (*Name of Signer*) am a duly authorized officer of/agent for _____ (*Name of Respondent*) and have been duly authorized to execute the foregoing on behalf of the said _____ (*Name of Respondent*).

SUBSCRIBED AND SWORN to before me by the above-named _____

on this the _____ day of _____, 20_____.

_____

Notary Public in and for

The State of _____

The County of _____

SIGNATURE AND NOTARY NOT REQUIRED IF COMPLETING IN BIDSYNC ELECTRONICALLY.

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income,other than investment income, from the vendor?

☐ Yes ☐ No

B.Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the directionof the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 Signature is not required if completing in BIDSYNC electronically;

Signature of vendor doing business with the governmental entity

Date

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 11/30/2015

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/ Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or anagency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency andthat is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or afamily member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed;or

(ii) the local governmental entity is considering entering into a contract with thevendor;

(B) has given to the local government officer or a family member of the officer one or more giftsthat have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed;

or (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that localgovernmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity. (a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(2) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmentalentity; or

(B) submits to the local governmental entity an application, response to a request for proposalsor bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(3) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or(C) of a family relationship with a local government officer.

Proposal References

List the last three (3) companies or governmental agencies, where the same or similar goods and/or services as contained in this RFP package, were recently provided by Respondent.

Reference 1

Client Name: Location:

Contact Name: Title:

Phone: E-mail

Contract Date To: Contract Date From: Contract Value: $

Scope of Work:

Reference 2

Client Name: Location:

Contact Name: Title:

Phone: E-mail

Contract Date To: Contract Date From: Contract Value: $

Scope of Work:

Reference 3

Client Name:

Location:

Contact Name:

Title:

Phone:

E-mail

Contract Date To:

Contract Date From:

Contract Value: $

Scope of Work:

Question and Answers for Bid #1901-286 - Williamson County Jail Renovations FY 2019

Overall Bid Questions
There are no questions associated with this bid.