

**Town Hall Renovation
for
South Central Louisiana
Human Services Authority**

Architect's Project No.: 2023.04

**State of Louisiana
Jeff Landry – Governor**

**Division of Administration
Taylor Barras - Commissioner of Administration**

**Office of Facility Planning and Control
Roger Husser - Director**



**New Office Build Out
South Central Louisiana
Human Services Authority
PROJECT DIRECTORY**

Upon review of all Documents for this project, inquiries shall be directed as follows:

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ADVERTISEMENT FOR GENERAL CONSTRUCTION BIDS

Sealed bids will be received on, **APRIL 17, 2024** by the South Central Louisiana Human Services Authority, at the South Central Louisiana Human Services Authority Office, 158 Regal Row, Houma, LA 70360 until **2:00 P.M.** At exactly 2:00 P.M., all bids will be publicly opened and read aloud for the furnishing of item/items listed below. After this time, bids will not be accepted.

Work Description:

South Central Louisiana Human Services Authority Town Hall Renovation (Office Interior Build Out)

Project Number: 2023.04

Complete Bid Documents for this project are available in electronic form. They may be obtained without charge and without deposit from Archestrate.designs@gmail.com and can be downloaded from Central Bidding at www.centralbidding.com. Printed copies are not available from the Architect, but arrangements can be made to obtain them through most reprographic firms. Plan holders are responsible for their own reproduction costs. Questions about this procedure shall be directed to the Architect at:
Phone: 985-266-5553

An **ON-SITE MANDATORY PRE-BID CONFERENCE** shall be held for bidders on **MARCH 28, 2024 commencing at 10:00 a.m.** at 805 Barrow St, Houma, LA 70360.

All Bid packages shall be accompanied with the following:

1. Bid Security in an amount equal to not less than **FIVE PERCENT (5%)** of the Bid Amount. Bid Security shall be a Certified Check, Cashier's Check or Bid Bond (Money Orders or Letters of Credit will not be accepted) made payable to the **SOUTH CENTRAL LOUISIANA HUMAN SERVICES AUTHORITY**. Bid Bond shall be accompanied with Power of Attorney.
2. Proposals must be submitted, Completed Louisiana Uniform Public Works Bid Form.
3. If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization shall be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid unless bidder has complied with LA R.S. 38:2212(A)(1)(C) or LA R.S. 38:2212(0).

Failure to include any item specified above, or failure to complete the Louisiana Uniform Public Works Bid Form in its entirety and properly execute this form will result in the Bid / Bids being declared irregular and cause for rejection as being non-responsive.

All other information contained in the Instructions to Bidders, Articles 1-10 shall be strictly adhered to.

Bids shall be accepted only from Contractors who are licensed under La. R.S. 37:2150-2164 for the classification of **BUILDING CONSTRUCTION**. No bid may be withdrawn after the closing time for receipt of bids for at least forty-five (45) calendar days, except under the provision of La. R.S. 38:2214.

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

Kristin Bonner, MHA, BSN, RN
Executive Director
South Central Louisiana Human Services Authority

INSTRUCTIONS TO BIDDERS

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ARTICLE 1

DEFINITIONS

1.1 The Bid Documents include the following:

- Advertisement for Bids
- Instructions to Bidders
- Public Works Bid Form
- Bid Bond
- Non-Collusion Affidavit
- Attestation Affidavit
- General Conditions of the Contract for Construction, AIA Document A201, 2017 Edition
- Contract between Owner and Contractor and Performance and Payment Bond
- Change Order Form
- Partial Occupancy Form (if applicable)
- Recommendation of Acceptance
- Asbestos Abatement (if applicable)
- Other Documents (if applicable)
- Specifications & Drawings
- Addenda issued during the bid period and acknowledged in the Bid Form
- Consent of Surety to Company to Final Payment – AIA G707

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

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

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

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

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

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

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

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

ARTICLE 2

PRE-BID CONFERENCE

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

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

ARTICLE 3

BIDDER'S REPRESENTATION

3.1 Each Bidder by making his bid represents that:

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

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

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

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

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

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

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

ARTICLE 4

BID DOCUMENTS

4.1 Copies

4.1.1 The Professional of Record shall provide the Bid Documents in electronic format at www.centralbidding.com. Printed copies will not be available from the Professional of Record, but arrangements can be made to obtain them through most reprographic firms and/or plan rooms.

4.1.1.1 All other plan holders are responsible for their own reproduction costs.

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

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

4.2 Interpretation or Correction of Bid Documents

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

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

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

4.3 Substitutions

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

4.3.2 A potential supplier may, but is not required to, submit a particular product for prior approval other than a product specified in the contract documents, no later than seven working days prior to the opening of bids. (La. R.S. 38:2295(C.)) Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including model numbers, drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require shall be included. It shall be the responsibility of the proposer to include in his proposal all changes required of the

Bid Documents if the proposed product is used. Prior approval, if given, is contingent upon supplier being responsible for any costs which may be necessary to modify the space or facilities needed to accommodate the materials and equipment approved.

4.3.3 Within three days, exclusive of holidays and weekends, after submission, the prime design professional shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted. If the prime design professional fails to respond within the time period provided for in this Paragraph, the submitted product shall be considered approved.

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

4.4 Addenda

4.4.1 Addenda will be posted to www.centralbidding.com. It is not the responsibility of the Owner or Professional of Record to notify bidders of any addenda.

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

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

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

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

ARTICLE 5

BID PROCEDURE

5.1 Form and Style of Bids

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

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

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

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

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

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

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

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

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

5.1.10 Proposal prices shall specifically EXCLUDE any and all taxes whatsoever. Act 1029 of 1991 exempts local governments from state and local tax effective September 1, 1991. Proposal prices shall include any shipping/transportation charges, if applicable. Tax Exempt Form attached herein.

5.2 Bid Security

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

The bid security shall be in the form of a Bid Bond written by a surety company licensed to do business in Louisiana and signed by the surety's agent or attorney-in-fact. The Bid Bond shall include the legal name of the bidder be in favor of the South Central Louisiana Human Service Authority, and shall be accompanied by appropriate power of attorney. The Bid Bond must be signed by both the bidder/principal and the surety in the space provided on the Bid Bond Form. Failure by the bidder/principal or the surety to sign the bid bond shall result in the rejection of the bid.

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

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

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

5.3 Submission of Bids

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

South Central Louisiana Human Services Authority
158 Regal Row
Houma, LA 70360

Bids sent by express delivery shall be delivered to:
South Central Louisiana Human Services Authority
158 Regal Row
Houma, LA 70360

5.3.2 Bids shall be received prior to the time on the date for receipt of bids indicated in the Advertisement for Bidders, or any extension thereof made by addendum. Bids received prior to the time and date for receipt of bids will be opened and read aloud at the designated time.

5.3.3 Bidder shall assume full responsibility for timely submission of bids.

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

5.4 Modification or Withdrawal of Bid

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

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

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

ARTICLE 6

CONSIDERATION OF BIDS

6.1 Opening of Bids

6.1.1 The properly identified Bids received on time will be opened publicly and will be read aloud, and a tabulation abstract of the amounts of the base bids and alternates, if any, will be made available to Bidders.

6.2 Rejection of Bids

6.2.1 The Owner shall have the right to reject any or all bids for just cause as defined in L.A. R.S. 38:2214(B) and in particular to reject a bid not accompanied by any required bid security or data required by the Bid Documents or a bid in any way incomplete or irregular.

6.3 Acceptance of Bid

6.3.1 It is the intent of the Owner, if he accepts any alternates, to accept them in the order in which they are listed in the Bid Form. Determination of the Low Bidder shall be on the basis of the sum of the base bid and

the alternates accepted. However, the Owner shall reserve the right to accept alternates in any order which does not affect determination of the Low Bidder.

ARTICLE 7

POST-BID INFORMATION

7.1 Submissions

7.1.1 Within ten (10) days of the bid opening, the Contractor shall submit the following information to the Professional of Record.

7.1.1.1 In accordance with La. R.S. 38:2227 [references La R.S. 38:2212(A)(3)(c)(ii), which has since been renumbered as La R.S. 38:2212(B)(3)], La. R.S. 38:2212.10 and La. R.S. 23:1726(B) the apparent low bidder on this project shall submit the completed Attestations Affidavit (Past Criminal Convictions of Bidders, Verification of Employees and Certification Regarding Unpaid Workers Compensation Insurance) form found within this bid package.

7.1.1.2. In accordance with La. R.S. 38:2224, Non-Collusion Affidavit form found within this bid package.

7.1.1.3. Physical copy of Bid Bond and Power of Attorney.

7.1.1.4. A signed copy of the Byrd Anti-Lobbying Amendment (if applicable)

7.1.1.5. Certificate of Insurance meeting requirements set forth in Article 11 of the A201 General Conditions.

7.1.1.6. Provide at least 3 past client references in which the Contractor performed a similar scope of work for. List the name, contact information, scope and size of project, and location. Projects must have been completed within the past ten years.

7.1.2 Prior to the Pre-Construction Conference, the Contractor shall submit the following information to the Professional of Record

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

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

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

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

7.1.2.5 The resume' of Bidder's Proposed Project Superintendent and Key Project Personnel. The project superintendent's resume shall show that they project superintendent, to be placed on this project, has constructed buildings of similar size and scope.

7.1.2.6 If requested by the Professional of Record, the lowest responsive and responsible bidder shall submit to the Professional of Record and the Owner, prior to the pre-construction meeting, a letter/letters from the manufacturer stating that the manufacturer will issue the guarantee complying with the requirements of the bid specifications based on the specified manufacturer and include the name of the applicator acceptable to the manufacturer at the highest level of certification for installing the components. This manufacturer shall be one that has received prior approval or is named in the specifications.

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

7.1.4 The Successful Contractor shall submit to the Professional of Record a copy of the Building Permit as soon as it is acquired. The Successful Contractor shall also, when formwork for foundation has been completed, verify that the slab elevation is at the Building Permit Elevation or higher. This verification shall be accomplished by a licensed surveyor along with a report verifying the elevation.

ARTICLE 8

PERFORMANCE AND PAYMENT BOND

8.1 Bond Required

8.1.1 The Contractor shall furnish and pay for a Performance and Payment Bond written by a company licensed to do business in Louisiana, which shall be signed by the surety's agent or attorney-in-fact, in an amount equal to 100% of the Contract amount. Surety must be listed currently on the U. S. Department of Treasury Financial Management Service List (Treasury List) as approved for an amount equal to or greater than the contract amount, or must be an insurance company domiciled in Louisiana or owned by Louisiana residents. If surety is qualified other than by listing on the Treasury list, the contract amount may not exceed fifteen percent of policyholders' surplus as shown by surety's most recent financial statements filed with the Louisiana Department of Insurance and may not exceed the amount of \$500,000. However, a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A. M. Best's Key Rating Guide shall not be subject to the \$500,000 limitation, provided that the contract amount does not exceed ten percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide nor fifteen percent of policyholders' surplus as shown by surety's most recent financial statements filed with the Louisiana Department of Insurance. The Bond shall be signed by the surety's agent or attorney-in-fact. The Bond shall be in favor of South Central Louisiana Human Services Authority.

8.2 Time of Delivery and Form of Bond

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

8.2.2 Bond shall be in the form acceptable to the Owner, such as the one included in the Bid Documents.

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

ARTICLE 9

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

9.1 Form to be Used

9.1.1 Form of the Contract to be used shall be furnished by the Professional of Record, an example of which is bound in the Bid Documents.

9.2 Award

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

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

ARTICLE 10

COMPLETION TIME AND LIQUIDATED DAMAGES

10.1 Completion Time

10.1.1 The Substantial Completion (as defined by AIA Document A201) shall be from the date of Notice to Proceed (within Ten (10) days after the signing of the Contract) as follows:

ONE HUNDRED EIGHTY-TWO (182) CALENDAR DAYS

10.2 Liquidated Damages

10.2.1 The Bidder shall agree to pay as Liquidated Damages the amount of **(ONE THOUSAND SIXTY FIVE) Dollars (\$1,065.00)** for each consecutive calendar day for which the work is not complete, beginning with the first day beyond the contract completion date stated on the "Notice to Proceed" or as amended by change order.



**Certificate of Sales/Use Tax Exemption/
Exclusion of Purchases by Political
Subdivisions of the State of Louisiana**
Louisiana R.S. 47:301(8)(c)

PLEASE PRINT OR TYPE.

Political Subdivision South Central Louisiana Human Service Authority	Louisiana Dept. of Revenue Registration No. (if applicable) 2073631-001	
Address 158 Regal Row		
City Houma	State LA	ZIP 70360

The above referenced entity does hereby certify that the entity is a public agency of the State of Louisiana with legal status as one of the following:

- State agency, board or commission
- Municipal government or instrumentality thereof
- Public Charter School (R.S. 17:3971-4001)
- Hospital service district
- Public housing authority
- Parish government or instrumentality thereof
- Parish school board or public school
- Law enforcement district
- Waterworks district
- Parish and municipal libraries
- Other _____

Purchases of tangible personal property and taxable services, and/or leases and rentals of tangible personal property by the above referenced political subdivision are totally exempted from the sales tax levied by the State as provided by R.S. 47:301(8)(c). The Louisiana Constitution, Article VI, §44(2) defines a political subdivision as "a parish, municipality, and any other unit of local government, including a school board and a special district, authorized by law to perform governmental functions".

The authorized person for the political subdivision certifies that the entity meets the criteria for the sales tax exclusion under R.S. 47:301(8)(c), and if sales tax is later found to be due, the entity will be responsible for any tax liabilities.

Signature of Authorized Agent	
Authorized Agent Kristin Bonner	Title Executive Director
Signature X Kristin Bonner	Date (mm/dd/yyyy) 01/26/2024

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: South Central Louisiana Human Service Authority
158 Regal Row
Houma, LA 70360

BID FOR: South Central Louisiana Human Service Authority New Office Build Out
805 Barrow St. Houma, Louisiana 70360
Project No. : 2023.04

The undersigned bidder hereby declares and represents that she/he: a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: Archestrate LLC and dated: March 15, 2024.

(Owner to provide name of entity preparing bidding documents.)

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

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

_____ Dollars (\$ _____)

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

Alternate No. 1 (*Add sound blanket insulation in all walls*) for the lump sum of:

_____ Dollars (\$ _____)

Alternate No. 2 (*Install high abuse gypsum board throughout entire tenant's area*) for the lump sum of:

_____ Dollars (\$ _____)

Alternate No. 3 (*Add portable generator docking station and transfer switch*) for the lump sum of:

_____ Dollars (\$ _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

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

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

** **A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

Name of Project:
South Central Louisiana Human Services Authority
Town Hall Renovation (Office Interior Build Out)

Project No.:
2023.04

STATE OF _____

PARISH OF _____

ATTESTATIONS AFFIDAVIT

Before me, the undersigned notary public, duly commissioned and qualified in and for the parish and state aforesaid, personally came and appeared Affiant, who after being duly sworn, attested as follows:

LA. R.S. 38:2227 PAST CRIMINAL CONVICTIONS OF BIDDERS

A. No sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes:

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

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

- (a) Theft (R.S. 14:67)
- (b) Identity Theft (R.S. 14:67.16)
- (c) Theft of a business record (R.S.14:67.20)
- (d) False accounting (R.S. 14:70)
- (e) Issuing worthless checks (R.S. 14:71)
- (f) Bank fraud (R.S. 14:71.1)
- (g) Forgery (R.S. 14:72)
- (h) Contractors; misapplication of payments (R.S. 14:202)
- (i) Malfeasance in office (R.S. 14:134)

LA. R.S. 38:2212.10 Verification of Employees

- A. At the time of bidding, Appearer is registered and participates in a status verification system to verify that all new hires in the state of Louisiana are legal citizens of the United States or are legal aliens.
- B. If awarded the contract, Appearer shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.
- C. If awarded the contract, Appearer shall require all subcontractors to submit to it a sworn affidavit verifying compliance with Paragraphs (A) and (B) of this Subsection.

Name of Project:

South Central Louisiana Human Services Authority
Town Hall Renovation (Office Interior Build Out)

Project No.:

2023.04

LA. R.S. 23:1726(B) Certification Regarding Unpaid Workers Compensation Insurance

- A. R.S. 23:1726 prohibits any entity against whom an assessment under Part X of Chapter 11 of Title 23 of the Louisiana Revised Statutes of 1950 (Alternative Collection Procedures & Assessments) is in effect, and whose right to appeal that assessment is exhausted, from submitting a bid or proposal for or obtaining any contract pursuant to Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950 and Chapters 16 and 17 of Title 39 of the Louisiana Revised Statutes of 1950.
- B. By signing this bid /proposal, Affiant certifies that no such assessment is in effect against the bidding / proposing entity.

NAME OF BIDDER

NAME OF AUTHORIZED SIGNATORY OF BIDDER

DATE

TITLE OF AUTHORIZED SIGNATORY OF BIDDER

**SIGNATURE OF AUTHORIZED
SIGNATORY OF BIDDER/AFFIANT**

Sworn to and subscribed before me by Affiant on the ____ day of _____, 2024.

Notary Public

END OF SECTION 004500

SECTION 004100

Sample
Required of Apparent Low Bidder Only
AFFIDAVIT
VERIFICATION OF CITIZENSHIP

BEFORE ME, the undersigned Notary Public, duly qualified in and for the Parish and State aforesaid, personally came and appeared:

(name)

who after being first duly sworn, deposed and said that:

1. I am the _____ of _____.
(title) (company)

2. I swear that _____ is registered and participates in a status verification system
(company)
to verify that all new employees in the state of Louisiana are legal citizens of the United States or are legal aliens.

3. I verify that if _____ is awarded the contract, it shall continue, during the
(company)
term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.

4. I acknowledge that _____ shall require all subcontractors to
(company)
Submit to _____ a sworn affidavit verifying compliance with Paragraphs (2) and (3) of
(company)
the Affidavit.

Name:
Title:
Company:

Sworn to and subscribed before me at Houma, Louisiana,
on this _____ day of _____, 20_____.

NOTARY PUBLIC

SECTION 004550 - NON-COLLUSIVE AND NON-SOLICITATION AFFIDAVIT (R.S. 38:2224)
(Submitted as "Post-Bid" Documentation per L.R.S. 38:2212.B.3.(a))

STATE OF LOUISIANA

PARISH OF _____

BE IT KNOWN, that on this _____ day of _____, 2024, before me the undersigned Notary Public, duly commissioned and qualified, within and for the Parish of _____, State of Louisiana, personally came and appeared _____, as the duly authorized agent of _____, who after being by me first duly sworn, did depose and say:

That _____ has/have been selected as Contractor for the PROJECT NAME: **SOUTH CENTRAL LOUISIANA HUMAN SERVICES AUTHORITY TOWN HALL RENOVATION (OFFICE INTERIOR BUILD OUT) PROJECT, HOUMA, LOUISIANA, ARCHITECT'S PROJECT NO. 2023.04**, and that affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course or their duties for affiant; and

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

APPEARER FURTHER DECLARES, that they will, in all respects, comply with the public contract laws of the State of Louisiana, including Title 38 of the Louisiana Statutes, and particularly Section 2224, as amended, of such Title 38 of the Louisiana Revised Statutes.

WITNESSES:

BY: _____

Sworn to and subscribed before me this _____ day of _____, 2024.

Notary Public

SECTION 004100

INDEMNIFICATION AGREEMENT

EXHIBIT A

The _____, (Contractor/Subcontractor/Lessee/Supplier) agrees to defend, indemnify, save and hold harmless the South Central Louisiana Human Services Authority (SCLHSA), all Departments, Agencies, Boards and Commissions, its officers, agents, servants and employees, including volunteers, from and against any and all claims, demands, expense and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur or in any way grow out of any act or omission of _____, (Contractor/Subcontractor/Lessee/Supplier) its agents, servants and employees, and any and all costs, expense and/or attorney fees incurred by SCLHSA, all Departments, Agencies, Boards, Commissions, its agents, representatives, and/or employees as a result of any such claim, demands, and/or causes of action arising out of the negligence of SCLHSA, all Departments, Agencies, Boards, Commissions, its agents, representatives, and/or employees _____, (Contractor/Subcontractor/Lessee/Supplier) agrees to investigate, handle, respond to, provide defense for and defend any such claim, demand, or suit at its sole expense related thereto, even if it (claim, etc.) is groundless, false or fraudulent.

Accepted by _____
Company

Signature

Title

Date Accepted _____

Is Certificate of Insurance Attached? _____ Yes _____ No

Contract No. _____ for _____, (Parish Department)

Purpose of Contract:



AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

South Central Louisiana Human Services Authority
New Office Build Out
805 Barrow St
Houma, Louisiana 70360

THE OWNER:

(Name, legal status and address)

South Central Louisiana Human Services Authority
158 Regal Row
Houma, Louisiana

THE ARCHITECT:

(Name, legal status and address)

Archestrate LLC
1340 West Tunnel Blvd. Suite 420
Houma, Louisiana 70360

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ADDITIONS AND DELETIONS:

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

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

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

14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES



Init.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents consist of the Owner-Contractor agreement, the Conditions of the Contract (General, Supplementary, and other Conditions), the Drawings, the Specifications, the Notice to Proposers, the Instruction to Proposers, all Addenda issued prior to and all Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect.

§ 1.1.2 The Contract

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

§ 1.1.3 The Work

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

§ 1.1.4 The Project

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

§ 1.1.5 The Drawings

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

§ 1.1.6 The Specifications

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

§ 1.1.7 Instruments of Service

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

§ 1.1.8 Initial Decision Maker

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

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In the event of a discrepancy in the Contract Documents, the more specific and more detailed requirement shall take precedence over the general and less detailed requirement. In case of doubt, the Contractor shall assume that the Owner intends that the more complete method, system, or process is required. Any work, labor, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce a functionally complete Project or part thereof shall be supplied by the Contractor at no additional cost to the Owner, regardless of

whether it is specifically stated in the Contract Documents. Any reference to standard specifications, manuals, codes of any technical society, group, organization, or association, or to the laws or regulations of any governmental authority, whether such reference is specific or by implication, shall mean the latest or most recent standard specifications, manual, code, laws, or regulations in effect at the time of the opening of bids (or the date of the Contract if not advertised for bids), unless otherwise specifically stated. However, no provision of any standard specification, manual, or code shall be effective to change the duties or the responsibilities of the Owner, Contractor, or Architect (or any of their consultants, agents, or employees) from those set forth in the Contract Documents. In the event of conflict, the Architect may interpret or construe the documents so as to obtain the most substantial and complete performance of the Work consistent with the Contract Documents and reasonably inferable therefrom, in the best interest of the Owner.

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

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

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. **1.2.4** The Word "Provide" shall mean furnish and install, and shall include, without limitation, all labor, materials, equipment, transportation, services, and other items required to complete the referenced tasks.

1.2.5 All items indicated "N.I.C." (Not in Contract) on the Drawings or in the Specifications are items either furnished, installed, and connected by the Owner, or excluded from the Contract.

1.2.6 All items indicated "By Owner" on the Drawings or in the Specifications are to be furnished and unloaded at the site by the Owner, in a location as directed by the Contractor. The Contractor shall move such items to the location of use in the buildings. The installation and/or service connections of this equipment shall be the responsibility of the Contractor, as set forth under contract documents.

1.2.7 Where the project is located in a parish of the State of Louisiana, the Contractor, at his own expense, shall record the Contract and bond or bonds required with the Clerk of Court or the Recorder of Mortgages of that Parish before the work commences. The Contractor shall have four (4) Additional copies of such stamped with book number and folio for his, Owner and Architect's files.

§ 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. If there is a conflict in the terms and conditions in the Contract Documents, the more stringent requirements shall govern.

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

§ 1.5.1

1.5.1 The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights. Ownership of the drawings, specifications, and other instruments of services shall be pursuant to LA R.S. 38:2317.

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

§ 1.6 Notice

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

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

§ 1.7 Digital Data Use and Transmission

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

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.1.3 The Owner, at its sole discretion, may require that the Contractor, all subcontractors, and material suppliers provide sworn lien releases on the Owner's forms with each of the Contractor's pay applications. The Owner reserves the right to withhold progress payments until such lien releases are received for all Work for which prior progress payments have been made to the Contractor. The Owner shall have the sole right to require the Contractor, all subcontractors, and all material suppliers to provide such releases with every Contractor's payment request until Final Acceptance of the Project.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 The Owner, being a political subdivision of the State of Louisiana, must have funds in the full amount of the Contract on hand prior to the award and execution of the Contract Documents. Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall

have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

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

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

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after fifteen (15) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

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

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

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

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work. The Contractor shall confirm and verify the location of each utility required for the Project and make further investigation of all structural, surface, and subsurface conditions including any soil borings of the site of the Project

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

§ 2.3.6 The successful Contractor shall obtain copies of the Bidding and Contract Documents by downloading them from the internet (www.centralbidding.com), purchasing Contract Documents from a reprographer registered with the electronic plan distribution website, or via non-editable electronic format (pdf) from the Architect.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner

may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

If the Contractor fails to correct Work or a portion of the Work or the Work at one or more sites in a multiple site Project 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, or fails or refuses to provide a sufficient number of properly supervised and coordinated labor or amount of materials or equipment to complete the Work within the Contract Time, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3. Stoppage of the Work by the Owner pursuant to this Subsection shall not result in a claim by the Contractor for delay or for any extension of the Contract Time

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

§ 2.6 Owner's Right to Audit

The Contractor shall keep full and accurate records of all costs incurred and items invoiced in connection with the Work and shall keep and maintain all records related to this Project, for a period of five (5) years after Final Payment, or five (5) years after any Grant close-out (if applicable), whichever is longer. The Contractor shall require the same of its subcontractors, suppliers, or any entity involved in the Project or Work. Such records of the Contractor and its subcontractors shall be open to audit by the Owner and/or its authorized representatives, and by the Legislative Auditor for the State of Louisiana, during the performance of the Work and during the referenced five (5) year period.

§ 2.7 Contract Administration

The Owner has retained the Architect, Engineer, or other design professional to design the Project. Such professional has the responsibility to administer the Contract for Construction, including inspection by himself and his consultants. No responsibility for services contracted to the Architect, Engineer, or Contractor shall be shared by the Owner or its Project Manager.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents, and in accordance with any industry or quality standards.

§ 3.1.3 .

The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Owner's Project Manager or 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. Quality control (i.e. ensuring compliance with the Contract Documents) is the responsibility of the Contractor. Testing, observations and or inspections performed or provided by the Owner are for quality assurance (i.e. confirming compliance with the Contract Documents) purposes and are solely for the benefit of the Owner.

§ 3.1.4 The Contractor stipulates and agrees that the Owner has no duty to discover any design errors or omissions in the Drawings, Plans, Specifications, and other Documents and has no duty to notify Contractor of the same. The Contractor acknowledges that the Owner does not warrant the adequacy and accuracy of any Drawings, Plans, Specifications or other Documents.

§ 3.1.5 The Contractor will establish to the satisfaction of the Architect the reliability and responsibility of the Subcontractors to furnish and perform the Work described in the sections of the Specifications pertaining to the Subcontractor's respective trades. See Section 5.2 for the procedures regarding Subcontractors.

§ 3.1.6 The Contractor or its designated representative shall attend all periodic construction meetings scheduled by the Architect or Owner's Project Manager when its presence is required and any meeting with the Owner when its presence is required.

§ 3.1.7 The Contractor is solely responsible for providing a safe place for the performance of the Work.

§ 3.1.8 The Contractor shall comply with the provisions of the Louisiana Underground Utilities and Facilities Damage Prevention law, R.S. 40:1749.11 *et seq.*, as amended prior to proceeding with any portion of the Work that may require excavation including but not limited to pile driving, digging, auguring, boring, backfilling, dredging, compressing, plowing-in, trenching, ditching, tunneling, land leveling, grading and or mechanical probing. Damage to any existing underground utilities by the Contractor shall be repaired at the Contractor's sole cost and expense. Such damage must be reported immediately to the Architect and the Owner's representative. The Contractor shall undertake to make such further investigations, including without limitation, all structural, surface and subsurface conditions, including soil borings and otherwise of the Project site, regardless of whether or not shown in the Contract Documents.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

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

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those

obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

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

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors. In the event the Owner or the Architect notify the Contractor of any such acts or omissions, The Contractor shall immediately cure such acts or omissions, or results thereof.

§ 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. Nothing contained herein shall relieve Architect of any duties or obligations owed to Owner.

§ 3.3.5 The Contractor shall review any survey provided and establish the building grades, lines, levels, column, wall and partition lines required by the various subcontractors in laying out their work, including but not limited to, all underground work in accordance with the Contract Documents. The Contractor shall properly and effectively coordinate the timing, scheduling and routing of all Work performed by all trades and subcontractors.

§ 3.3.6 Before ordering any material or performing any work, Contractor shall verify dimensions and check conditions to ensure that they properly reflect those on the Drawings. Any inconsistency shall be brought to the attention of the Architect. If discrepancies occur between ordered material and actual conditions, of which the Architect was not notified beforehand, costs to correct such discrepancies shall be borne by the Contractor.

§ 3.3.7 On trench excavations more than five feet in depth, the Contractor shall bear sole responsibility for design and execution of acceptable trenching and shoring procedures in accordance with State regulations and OSHA 29 CFR 1926, Subpart P, Inspection Procedures for Enforcing the Excavation Standards. Contractor shall engage the services of a qualified engineer, licensed to practice in the state where the Project is located, to prepare detailed plans and specifications directing Contractor in safe execution of trenching and shoring.

§ 3.4 Labor and Materials

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

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

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them. The Owner shall have the right to remove any unfit person from the Project. For a

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Project site that includes a work in session with children present in or adjacent to the Project, the Contractor's employees and its Subcontractors' employees may be subject to a criminal background check as set forth in La. R.S. 17:15 and La. R.S. 15:587.1 or any other laws, upon the request of the Owner. Any unfit person based on a background check shall be immediately removed from the Project site. The Contractor's employees, and all other persons including all Subcontractors, Sub-subcontractors and suppliers carrying out any work on the Project site required by the Contract Documents, shall wear appropriate identification on their shirt always when on the Project site. The Owner shall not be responsible or liable to Contractor or any subcontractor for any additional costs, expenses, losses, claims or damages incurred by Contractor or Subcontractor as a result of any removal of an unfit person or compliance with this section.

3.4.4 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 1 of the Specifications).

3.4.5 By making requests for substitutions based on Subparagraph 3.4.4 above, the Contractor:

1. represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respect to that specified;
2. represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
3. certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and
4. will coordinate the installation of the accepted substitute, making such changes as may be required in accordance with the manufacturer's installation guidelines and for the Work to be complete in all respects.

3.4.6 Should a Contractor propose a substitute material or method assembly that is of questionable quality to the Architect, suitable tests may be required to establish a basis for acceptance or rejection. Such tests will be paid for by the Contractor and conducted in accordance with Article 13.5, Tests and Inspections.

3.4.7 Architect's decision on all substitution requests is final and binding.

§ 3.4.8 Building materials, including but not limited to, all drywall materials to be incorporated into the Work shall either be certified, in writing, by the manufacturer to be asbestos free or be inspected and tested by accredited testing laboratories and certified to be free of asbestos content in accordance with the applicable federal standards, including but not limited to the Asbestos Hazard Emergency Response Act (AHERA) and the Toxic Substance Control Act (TSCA). The word "asbestos" means the Asbestiform, Tremolite, and Actinolite. Copies of test reports shall be furnished to the Architect and the Owner's representative. Material discovered to contain asbestos shall be removed immediately at the Contractor's sole cost and expense using current standards of the Louisiana Department of Environmental Quality (DEQ). Drywall materials must be free of any volatile chemicals that have identified emissions of sulfurous gases.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. The Contractor's warranty includes any and all specific warranties set forth in the Contract Documents and all warranties

provided by law including, but not limited to any actions or claims that may be asserted as provided in La. R. S. 38:2189. Nothing herein or otherwise provided in the Contract Documents limits in any way all warranties allowed by law.

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

§ 3.6 Taxes

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

§ 3.6.2 In the event the Contract Documents designate the Project for exemption of sales and use taxes, the Contractor is informed that La. R.S. 47:301(8)(c) exempts the State of Louisiana, cities, parishes and other political subdivisions and their agencies, boards and commissions from state and local sales and use taxes. The Contractor is hereby made aware that materials and equipment which are affixed to and made a part of the Project such that they become immovable property and permanently incorporated into the Project or Work may qualify for the exemption. The Contractor as an Agent of the Owner shall execute any documentation required to effectuate this exemption. The Contractor is still responsible for payment of all taxes on nonexempt items necessary in the construction of the Project.

§ 3.6.3 After the Contract is executed, the Owner will furnish the Contractor a Louisiana Department of Revenue Form R-1020 entitled "Designation of Construction Contractor as Agent of Governmental Entity and Exemption Certificate" for use by the Contractor, Subcontractors, and Material Suppliers for the Project which is required by the State of Louisiana Department of Revenue and Taxation, Sales Tax Division.

§ 3.6.4 If designated and in accordance with La. R.S. 47:301(8)(c), the Contractor shall not pay any State or local sales taxes or State or local use taxes on materials and equipment which are affixed to and made a part of the real estate of the Project or Work (hereinafter referred to as "exempt items").

§ 3.6.5 All purchases of "exempt items" for the Project shall be made by the Contractor on behalf of and for the Owner.

§ 3.6.6 Payment requests for materials and equipment that are tax exempt shall be submitted separately but at the same time with progress payment requests. The payment request shall include a description of each item purchased, name of supplier, invoice number and date, and the cost of each item excluding taxes. The "Tax Exempt" payment requests shall not include any amount for the Contractor's or Subcontractor's labor. Copies of invoices shall be attached to the Progress Payment request.

§ 3.6.7 When applicable and the exemption is exercised, the Contractor and all Subcontractors shall record all purchases of materials and equipment to be permanently installed or permanently incorporated into the Work. Preparing, maintaining and preserving these records shall be in accordance with applicable State laws and local ordinances and resolutions except that the records shall be preserved for not less than five (5) years from the date of Final Payment. In addition to making the records available to the Louisiana Department of Revenue and Taxation and/or local taxing authorities, copies of the records shall also be made available to the Owner upon request.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

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

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

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

§ 3.7.4 Concealed or Unknown Conditions

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

3.7.4.1 Nothing contained herein shall relieve Architect of any duties or obligations owed to Owner.

§ 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

§ 3.8.1 The Contractor shall include in the Contract Sum any cash allowances stated in the Contract Documents and as may be allowed by La. R.S. 38:2212(K) limited to hardware, face brick, landscaping, electrical light fixtures, miscellaneous steel, tile, wallpaper and other exterior finishes, fixtures and furnishings, and carpeting, or other allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3** whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

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

§ 3.8.4 If any materials are specified as to quantity only, such are not considered a cash allowance. The provisions stated in the information in the Specifications about any quantity will be applicable regarding any credit to the Owner.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent Project Manager, a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The Project Manager, and if no Project Manager, the superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing,

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

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

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The date of Commencement to begin the Work is the date set forth in the Contract or such other date as may be established in a Notice to Proceed. The schedule must show a completion of the Work within the Contract Time. A schedule showing early completion dates will not be accepted without written acceptance of the Owner. 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. The Schedule may be used as a means of determining the Contractor's progress in performance of the Work, but neither the Contractor by providing the schedule to the Architect and Owner, nor its acceptance or use by the Architect or Owner, acts in any way to relieve the Contractor of any of the Contractor's obligations under the Contract. All float is owned by the Owner. The schedule shall include a network analysis to identify those tasks that will lengthen the Project completion date

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

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect. If the work is not on schedule as determined by the Architect and the Contractor fails to take action to correct, then the Contractor shall be deemed in default and the progress of the Work shall be deemed unsatisfactory. Such default may be considered as a ground for termination by Owner for cause in accordance with Section 14.2.

§ 3.11 Documents and Samples at the Site

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

§ 3.12 Shop Drawings, Product Data and Samples

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

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

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

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

The Contractor shall review, approve and stamp all Shop Drawings Product Data and Samples prior to submitting to the Architect. Failure to comply with this requirement will cause Shop Drawings to be returned unreviewed. Submittals shall be made with reasonable promptness and in such sequence as to cause no delay in the Work or in the Work of the Owner or any separate Contractor. Submittals involving the selection of color and/or finish shall be coordinated to allow all colors and/or finishes to be selected at once.

(Paragraph deleted)

§ 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. Should the Contractor, subcontractor or sub-subcontractor install, construct, erect or perform any portion of the Work without approval of any required submittal, the Contractor shall bear the cost, responsibility and delay for removal, replacement and/or correction of any and all items, materials and/or labor.

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

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

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

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

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

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

3.12.11 All Shop Drawings and Schedules prepared for this project shall be submitted in the form of electronic submittals. Each drawing shall have a clear space of 4" x 5" for Architect's approval stamp. Submittals shall be transmitted electronically. Shop Drawings and transmittal letter shall be identified with title and location of the project, Architect, Contractor, submission date, specification section number and detail number to which the Shop Drawing pertain.

3.12.13 The Architect will check the Shop Drawings and make necessary notations and corrections. After completion of review, the Architect will take electronic copies for his record and return electronically to the Contractor. Vendors and Subcontractors shall supply to the Contractor for distribution, approved copies and prints as required for actual construction. Architect will retain one electronic copy of catalog cuts and brochures and return balance to Contractor.

3.12.14 Submittal of Shop Drawings, catalog cuts, samples, brochures, wiring diagrams, etc., is required where specified, and for all items and system listed in any preliminary material list.

3.12.15 Wiring diagrams shall be complete composite drawings specially prepared for this project, and shall show color coding, terminal markings and locations. Manufacturers' typical wiring diagrams will not be accepted unless specified otherwise in the specifications.

3.12.16 Wherever manufacturer's printed specifications or instructions are to be referenced and made a part of this specification, the Contractor shall procure and distribute the necessary copies to all concerned parties, including the Architect, and provide a copy in Operation and Maintenance Brochures to be forwarded to the Owner.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. The Contractor inspected the site prior to award and accepted the areas for parking, storage and lay-down of materials and access to the site and the Owner will not be required to alter or interrupt any other operations at the Project site.

3.13.1 Subject to the Contractor's concurrence, the Owner shall have the privilege to use any and all portions of the project that have reached such a stage of completion as permit occupancy, provided that such occupancy does not hamper the Contractor or prevent his efficient completion of the Contract. Terms of partial occupancy shall not constitute an acceptance of the Contractor's work in whole or in part. Upon Substantial Completion of the Work, and execution of this Certificate by the Owner will constitute a partial acceptance of the Work by the Owner to the intent indicated on it. However, this shall not constitute an acceptance of the completion of the Contract, nor shall such occupancy release the Contractor from his obligation under the Contract.

§ 3.13.2 The Contractor shall take all precautions necessary to prevent loss or damage caused by vandalism, theft, burglary, pilferage or unexplained disappearance of property of the Owner, whether or not forming part of the Work located in the areas of the Project to which the Contractor has access. The Contractor shall provide for security of the Owner's property to prevent any such loss, damage or injury, except as may be directly caused by agents or employees of the Owner.

§ 3.14 Cutting and Patching

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

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

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project. For the Project Site, Contractor is responsible for vermin-control, grounds up-keep, sidewalk maintenance, lawn mowing, weed control and grounds cleaning. Directly prior to occupancy by the Owner, the Contractor shall clean all surfaces to be free of foreign matter, marks, stains, paint splatter, fingerprints, soil, dirt, and dust. All items required to be polished shall be cleaned accordingly. All clean-up operations shall be approved by the Architect.

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

§ 3.16 Access to Work

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

§ 3.17 Royalties, Patents and Copyrights

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

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, the Owner's Project Manager, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

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

3.18.3 Nothing contained in this Section shall relieve Architect of any duty or Obligation owed to Owner.

§ 3.19 Log of Changes

The Contractor shall maintain a current log of all Request for Information (RFI's), Change Proposal Requests (CPRs), Change Orders and Construction Change Directives at the site of the Project and shall provide the Owner and Architect said logs monthly, not later than the tenth (10th) day of the following month.

§ 3.20 Failure to Perform Work

Contractor shall be liable to the Owner for all costs or damages that the Owner incurs as result of the Contractor's failure to perform the Work, or any part thereof, in accordance with Contract Documents. Contractor's failure to perform shall include, but not be limited to, the failure of its subcontractors and/or suppliers of any tier to perform. The Contractor's liability to the Owner shall include, but not be limited to (1) the increase costs of performance, including services of the Architect and other consultants, resulting from the Contractor's failure to comply with the Contract Documents; (2) costs of removal of defective or noncompliant work; (3) costs of corrective or warranty work; (4) liability to third parties caused by Contractor's failure to perform the Work or any part thereof; (5) re-procurement costs; (6) attorney fees and related costs, including costs incurred in enforcing Owner's rights under the Contract Documents; and (7) Liquidated and/or stipulated damages.

§ 3.21 Liens

§ 3.21.1 The term "lien" as used in this Section 3.21 and in Article 9 of these General Conditions and in Article 5 of the Agreement Between Owner and Contractor, AIA A101, refers to "claims" as provided in La. R.S. 38:2242, which authorizes "claimants" who perform work, labor, or provide materials or supplies for a public work to file "claims" with the governing authority. The term "lien" is used in the referenced sections instead of the word "claim" solely to avoid confusion with the "Claims" that may be filed by the Contractor and/or Owner pursuant to the Contract Documents, as provided in Article 15 of these General Conditions.

§ 3.21.2 In the event a Lien is filed by anyone in relation to the Work, the Owner shall have the right (1) to require the Contractor to furnish to the Owner a release of a Lien or claim that has been recorded by the person or entity filing the claim; (2) to require the Contractor to discharge the Lien by posting a bond with the Clerk of Court for the Parish in which the Project is located within five (5) calendar days of notice by the Owner to the Contractor; (3) obtain a Notice of Cancellation Certificate for each filed lien; and/or (4) to retain out of any payment due or thereafter to become due an amount sufficient to indemnify the Owner against any Lien or claim of a Lien, including bond premiums and attorney fees, and to apply the same in such manner as Owner deems necessary to satisfy such claims and Liens.

§ 3.21.3 In the event such Lien is not discharged, the Contractor at its sole cost and expense, including attorney's fees, shall hold harmless and defend the Owner of and from any and all claims, lawsuits, causes of actions and demands of any person or entity asserting or claiming any right as a result of any Lien or claim, recorded or unrecorded, against the Contract Funds or the Owner's property. In the event such Lien is not discharged, the Contractor shall be deemed in default and the Owner shall have the right to terminate the Contract for said default. The Owner shall also have the right, but not the obligation, to bond said Lien(s), and Contractor shall be responsible for all costs incurred as a result thereof, including but not limited to, bond premiums and attorney fees.

§ 3.21.4 Prior to the receipt of any partial payment, or of Final Payment, Contractor shall provide the Owner a partial release or a final release, as appropriate, of all Liens and claims of any persons furnishing labor and/or materials to the Work, Contractor shall not receive Final Payment before providing to the Owner satisfactory evidence (i.e. clear lien certificate) that there are no other Liens or claims whatsoever outstanding against the Work or Contract.

ARTICLE 4 ARCHITECT

§ 4.1 General

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

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

§ 4.2 Administration of the Contract

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

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

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

§ 4.2.4 Communications

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

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

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

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

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order, with the approval of the Owner's Project Manager, minor changes in the Work that do not involve changes in either the

Contract Sum or the Contract Time as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

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

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

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

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

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

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

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor. As applicable based upon the value of the Work, subcontractors shall be duly licensed in accordance with La. R.S. 37:2150, *et seq.* and local laws.

§ 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. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

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

§ 5.2.1 .

Unless otherwise stated in the Contract Documents, the Contractor, shall, prior to the Pre-Construction meeting (see § 13) furnish, in writing, to the Owner's Project Manager and Architect the contact information of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Owner or Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection. No payment shall be made to the Contractor until the requested information specified in this subsection is provided to the Architect and the Owner.

§ 5.2.2

The Contractor shall not contract with a proposed person or entity to whom the Owner, the Owner's Project Manager, or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection. The Contractor shall not be entitled to claims for additional time and/or an increase in the Contract Sum due to a problem with the performance or non-performance of a subcontractor. The Contractor is totally and solely responsible for any lost time or extra expense incurred due to a Subcontractor's and/or Material Supplier's failure to perform. Under no circumstances shall the Owner or Architect mitigate the Contractor's losses or reimburse the Contractor for losses caused by its Subcontractors and/or Material Suppliers.

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

§ 5.2.4

The Contractor shall notify the Architect and the Owner's Project Manager at least five (5) calendar days prior to any change or substitution of any subcontractor or material supplier. Subcontractors and other persons or organizations selected by the Contractor and identified at the Pre-Construction Meeting and in connection with the Schedule of Values shall not be changed except with the written approval of both the Architect and the Owner's Project Manager

§ 5.3 Subcontractual Relations

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

§ 5.4 Contingent Assignment of Subcontracts

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

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

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

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

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised. The Contractor shall anticipate the Work of the Owner or other Contractors may delay, disrupt, or interfere with the Work and the progress schedule and Contractor shall do all cutting, fitting and patching of the Work required to make its several parts come together properly in a manner that will not endanger any Work of others by cutting, excavating or otherwise altering their Work without the written consent of the Owner.

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

§ 6.1.5 The Owner may furnish materials or equipment to the Project site to be incorporated into the Work. For any Owner furnished equipment or materials to be incorporated into the Work, the Contractor shall perform such tasks as are necessary to coordinate and install the Owner furnished materials and/or equipment to make the Work functionally complete. If the Contractor contends that such Owner furnished materials or equipment constitutes an extra to the Work outside the requirements of the Contract Documents, the Contractor may request a change order for direct field costs incurred in installing such Owner furnished materials or equipment in accordance with the procedure set forth in Article 7.

§ 6.2 Mutual Responsibility

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

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

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

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

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

§ 6.3 Owner's Right to Clean Up

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. A Request for Information (RFI) is not a change in the Contract Documents nor does it result in any changes to the Contract Sum or the Contract Time.

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

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

§ 7.1.4 The Contractor shall submit the following information for the Contractor at the Pre-Construction Conference, prior to the commencement of any Work. The Contractor shall require of any Subcontractor desiring to submit a Change Order to submit similar information to the Contractor no later than fourteen (14) days prior to the submission of that Subcontractor's first Change Order. Such Subcontractor's information shall be provided to the Architect and the Owner's representative with any requested Change Order involving any request to change the Contract Sum. The information shall be provided in a written document and the Chief Financial Officer ("CFO") of the Contractor or Subcontractor (or another officer if no CFO) shall certify its accuracy and sign such certification.

- .1 Fixed job site overhead cost for the Contractor or Subcontractor, itemized with documentation to support daily rates. Fixed job site overhead costs shall be limited solely to the items listed in Section 7.1.7 hereinbelow;
- .2 Bond premiums with supporting information from the Contractor's or Subcontractor's carrier;
- .3 Insurance rates with supporting information from the Contractor's or Subcontractor's carrier;
- .4 Labor Burden by trade for the Contractor or Subcontractor, to include only:
 - .1 Applicable payroll taxes;
 - .2 Worker's Compensation;
 - .3 Unemployment Compensation, both federal and State;
 - .4 Social Security taxes.
- .5 Fringe Benefits, to include only.
 - .1 Sick Leave;
 - .2 Vacation;
 - .3 Health Insurance;
 - .4 Life Insurance;
 - .5 Union Dues;
 - .6 Apprenticeship training.
- .6 Internal Rate Charges for all significant company-owned equipment for the Contractor or Subcontractor.

Failure to submit this information at the Pre-Construction Meeting shall prohibit the Contractor from claiming these items on any Change Order.

§ 7.1.5 No order, oral statement, or direction of the Architect or the Owner shall be treated as a Change Order nor shall it entitle the Contractor to an adjustment of the Contract Sum or the Contract Time. Requests for Information (RFI) shall not constitute changes to the Contract Documents and do not change the Contract Sum or Contract Time.

§ 7.1.6 Unit prices shall be inclusive of all costs, including mark-up for overhead and profit, and shall be applied to units or measure as defined in the Contract Documents for each category of Work, if any.

§ 7.1.7 Fixed job site overhead costs, for all purposes under this Contract, shall be limited solely to the following actual costs. Said costs must be actually incurred to be included in the Project's fixed site overhead costs. If the Contractor or Subcontractor has no actual costs in a particular category, then no costs shall be allowed to the Contractor or Subcontractor in that category:

- .1 Hourly billable rate for the on-site Project Management Team;
- .2 Site office costs to include only, as applicable, (1) office trailer, (2) office equipment, (3) temporary phone, (4) reproduction, (5) postage/delivery, (6) project vehicles, and (7) fuel.
- .3 Site general costs to include only, as applicable, (1) temporary water, (2) temporary electrical, (3) interim clean-up, (4) project toilets, and (5) safety.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

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

§ 7.2.2 A Change Order must comply with the requirements of La. R.S 38:2212(M). A Change Order is not final nor binding upon the Owner and may not be included in an Application for Payment, until signed by the authorized representatives of the Owner, Contractor and Architect. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the adjustment in the Contract Sum or the Contract Time. Any reservation of rights, stipulations, or other modifications made on the Change Order by the Contractor shall have no effect. A Change Order affecting the Contract Sum shall be based on the Cost of the Work, as set forth in section 7.2.3, and Overhead and Profit, as set forth in section 7.2.4, subject to approval of the Architect and the Owner.

§ 7.2.3 "Cost of the Work" for the purpose of Change Orders shall be costs actually required to be incurred in performance of the work and paid by the Contractor and Subcontractors. Such costs shall consist only of the following:

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

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

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

- 7.2.3.3** Cost of each necessary piece of machinery and equipment required to perform the Work, identifying each item and its individual cost, including taxes. Incidental small tools of a specific trade (i.e., shovels, saws, hammers, air compressors, etc.) and general use vehicles, such as pickup trucks even for moving items around the site, fuel for these general use vehicles, travel, lodging, and/or meals

are not eligible and shall not be included.

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

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

§7.2.4 "Overhead and Profit" for the purpose of Change Order eligible costs for the Contractor and Subcontractor consists of (1) fixed job site overhead and home office fixed overhead, and (2) profits on the Cost of the Work, hereinafter called "Overhead and Profit," but such Overhead and Profit shall not exceed a combined total of 16% of the direct cost of the portion of the Work being added by the proposed Change Order. Credits to the Owner resulting from a change in the Work shall be the sum of those items above, except credit will not be required for Overhead and Profit. When a change results in both credits to the Owner and extras to the Contractor for related items, overhead and profit shall only be computed on the net extras cost to the Contractor.

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

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

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

7.2.5.3 When the Work is a combination of General Contractor Work and Subcontract Work; that portion of the direct cost that is General Contract Work shall be computed per Section 7.2.5.1 and that portion of the direct cost that is Subcontract Work shall be computed per Section 7.2.5.2. Premiums for the General Contractor's bond may be included, but after the markup is added to the Cost of the Work. Premiums for the Subcontractor's Bond shall not be included.

7.2.5.4 Subcontract cost shall consist of the items in Section 7.2.3 above plus Overhead and Profit as defined in Section 7.2.4.

§7.2.6 The cost to the Owner resulting from a change in the Work shall be prepared and presented to the Architect and the Owner in a proposed Change Order, for their review and approval, as the sum of the "Cost of the Work" (as defined in section 7.2.3) and "Overhead and Profit" (as defined in section 7.2.4). Where a proposed Change Order results in only a credit to the Owner, credit will not be required for Overhead and Profit. Where a proposed Change Order results in both credits to the Owner and extra cost to the Contractor for related items, Overhead and Profit will only be computed on the net extra cost to the Contractor. The amount of the proposed Change Order so computed shall not be binding nor final until approved in writing by both the Architect and the Owner, as provided in section 7.2.2 above.

§7.2.7 Before a Change Order is prepared, the Contractor shall provide and deliver to the Architect and Owner's representative the following information concerning the Cost of the Work. The provision of said information is not subject to waiver, and shall be provided by the Contractor within a reasonable time after being instructed to prepare said Change Order:

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

.2 A detailed itemized list of labor, material and equipment costs for each Subcontractor's and/or Sub-Subcontractor's work including quantities and unit costs for each item of labor, material, and equipment.

§ 7.2.8 After a Change Order has been finalized and approved by the Owner, the Contractor and the Architect, in accordance with section 7.2.2, above (as reflected by all required signatures), no future requests for extensions of time or additional cost shall be considered for the change in the Work related in whole or in part to the events that required that Change Order. The Change Order represents the full and final amount of the change in the Contract Sum and/or the Contract Time due to the Contractor for all additional Work related to the Change Order. Contractor waives any further claims for additional costs or additional time, whether direct or indirect, for the change in the Work related to said Change Order.

- .1 Nothing contained herein shall be construed as a waiver of any rights the Contractor may have under La. R.S. 38:2216(H).
- .2 Contractor shall bring any such claims identified in La. R.S. 38:2216(H), to which it may be legally entitled, in accordance with the provisions of Article 15 herein below entitled "Claims and Disputes."

§ 7.2.9 The Contractor will be eligible for extended fixed job-site overhead for time delays only when all the requirements listed herein below in this section are met. In all cases the Contractor shall notify the Architect and Owner's representative in writing and shall make a Claim pursuant to the provisions of Article 15 herein. Reasonable proof shall be required by the Architect and Owner of each of the required elements listed below.

- .1 Complete stoppage of the Work occurs;
- .2 Such complete stoppage of the Work also causes an extension of critical path activities (defined as such on the approved Baseline Schedule required by Section 3.10.1);
- .3 Such complete stoppage of the Work also results in an extension of the Contract Time;
- .4 The Contractor is unable to mitigate financial damages through replacement work;
- .5 The complete stoppage of the Work is not related in whole or in part to acts or omissions attributable to the Contractor, its subcontractors or suppliers or its representatives; and
- .6 The complete stoppage of the Work is due solely to acts or omissions attributable to the Owner or its representatives.

§ 7.2.10 "Cost of the Work" whether incurred by the Contractor or a Subcontractor shall not include the following:

- .1 Salaries or other compensation of the Contractor's or Subcontractor's personnel at the Contractor's or Subcontractor's principal office and branch offices.
- .2 Any part of the Contractor's or Subcontractor's capital expense, including interest on the Contractor's or Subcontractor's capital employed for the work.
- .3 Overhead and general expenses of any kind or the cost of any item not specifically and expressly included in section 7.2.3 in Cost of the Work.
- .4 Cost of supervision not specifically required by the Change Order.
- .5 Cost of superintendent already on the Project, unless the Contract Time is being extended in the Change Order.

§ 7.2.11 When applicable, as provided in the Contract Documents, the cost to Owner for Change Orders shall be determined by quantities and unit prices. The quantity of any item shall be submitted by the Contractor and approved by the Architect and the Owner's representative. Unit prices shall cover costs of Material, Labor, Equipment, Overhead and Profit. When Unit prices (which include Overhead and Profit) are used as the basis for the added Cost of the Work to the Owner resulting from the Change Order, Overhead and Profit shall not be duplicated by adding it again under section 7.2.4.

§ 7.2.12 Any and all changes or adjustments in the Work that are the subject of a proposed Change Order shall be supported, in addition to the cost and schedule information required elsewhere in this Article 7, by detailed specifications, plans, and/or drawings that evidence the need for the change in the Work and the propriety of the proposed method to effectuate that change.

§ 7.2.13 Any and all changes or adjustments to the Contract Time requested or claimed by the Contractor as a result of a proposed Change Order shall require documentation and justification for the adjustment by a method analysis of the Contractor's most recent schedule in use prior to the change, which shows an extension in critical path activities. Changes that affect or concern activities containing float or slack time (i.e. not on the critical path) that can be accomplished within such float or slack time shall not result in an increase in the Contract Time.

§7.2.14 When applicable as provided by the Contract, the cost to Owner for Change Orders shall be determined by quantities and unit prices. The quantity of any item shall be as submitted by the Contractor and approved by the Architect. Unit prices shall cover cost of Material, Labor, Equipment, Overhead and Profit.

§ 7.3 Construction Change Directives

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

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order. A Construction Change Directive may be used by the Owner to document the amount of Liquidated Damages assessed or fees due to the Architect for additional inspections.

§ 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 By estimated cost to which is applied the applicable fee herein provided. Adjustment shall be determined by the Contractor by listing the estimated cost of the following, where applicable.
 - a) Material costs (indicating identifications and unit prices) which shall include the costs of transportation.
 - b) Direct Labor Costs (indicating hours and rates by trades).
 - c) Increased or decreased insurance and bond premium costs payable by reason of the change.
 - d) Actual rental charges for rented equipment.
 - e) Payment required to labor organizations under existing labor agreements.
 - f) A maximum of eight percent (8%) of the total of items (a) through (e) as compensation for all other costs and expenses including administrative overhead, profit and supervision.
 - g) Work performed by Subcontractors, computed as outlined in items (a) through (f) plus a maximum of eight percent (8%) of the total of items (a) through (e) as compensation for all other costs and expenses including home office and on-site administrative overhead, profit and supervision of the General Contractor, where applicable.

- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

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

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

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

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

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

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

§ 7.4 Minor Changes in the Work

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

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 TIME IS THE ESSENCE OF THIS CONTRACT. 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 or such other date as may be stated in a Notice to Proceed.

§ 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.

§ 8.1.5 The Contract Time shall not be changed by submission of a schedule that shows an early completion date unless specifically authorized by a final, approved Change Order; and Contractor is specifically prohibited from submitting a schedule that shows an early completion date, unless specifically authorized by a final, approved Change Order.

§ 8.1.6 For all purposes of counting time provided in these Contract documents, Time shall be counted on a calendar day basis. However, unless otherwise specified, where the due date for any action, submittal or response falls on a Saturday, Sunday, or legal holiday (as identified in Section 8.1.7), such action, submittal, or response shall be considered due on the next business day which is not a Saturday, Sunday or legal holiday. The preceding sentence shall not apply to the date of Substantial Completion.

§ 8.1.7 For purposes of Section 8.1.6, legal holidays shall include the following:

New Year's Day	January 1
Martin Luther King Day	
Mardi Gras Day	
Good Friday	
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	First Monday in September
Thanksgiving Day	Fourth Thursday in November
Christmas Eve	December 24
Christmas Day	December 25
New Year's Eve	December 31

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. Substantial Completion of the Work must be achieved by the time stated in the Agreement between the Owner and Contractor, subject to such extensions that may be agreed to via Change Order. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

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

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

§ 8.2.4 The Contractor agrees to commence the Work not later than the date set forth in the Agreement or in the written Notice to Proceed issued by the Owner, and to achieve Substantial Completion of the Work within the time stated in the Contract Documents, and to achieve completion of the Punch List within the time stated in the Contract Documents. Further, the Contractor agrees to commence Onsite Construction Activities, as defined below in section 8.2.2.1, no later than fourteen (14) days after the date of commencement of the Work set forth in the Agreement or in the Notice to Proceed. The Contractor and Owner mutually agree that the Owner's operations will be negatively impacted, and the Owner will sustain damage that will be impracticable and extremely difficult to quantify if Substantial Completion of the Project and Punch List completion are not achieved within the time set forth in the Contract Documents. The Contractor and the Contractor's Surety shall be liable for and shall pay to the Owner Liquidated Damages, which shall not be considered a penalty, in the amount stated in the Contract Documents as fixed, agreed upon and Liquidated Damages for each calendar day (Saturdays, Sundays, and legal holidays included) that Substantial Completion is delayed beyond the time stated in the Contract Documents. The Owner shall be entitled to collect any and all sums that are due the Owner as Liquidated Damages in any manner available, including but not limited to withholding the amounts due to the Contractor for Progress Payments or Final Payment, deducting the Liquidated Damages due by a Change Order or Construction Change Directive, or collecting the amounts due from the Contractor or the Contractor's Surety.

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1. Onsite Construction Activities are those activities beyond mobilization which include actual and physical progress of the Work on the Project site. By way of example, typical Onsite Construction Activities include, but are not limited to, clearing and grubbing of the Project site, Project site fill and pile driving.
2. Should Contractor fail to commence Onsite Construction Activities timely, as set forth in this section 8.2.4, then any future claim Contractor may submit for an extension of the Contract Time shall be directly reduced by the number of days Contractor was late in the commencement of Onsite Construction Activities as defined herein.

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

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by adverse weather conditions documented in accordance with Section 15.1.6.2() by delay authorized by the Owner then the Contract Time shall be extended for such reasonable time as the Architect may determine.

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

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

§ 8.3.4 Time is the essence of the Contract. The Owner's operations will be impacted and delayed if the Project is not substantially complete within the time set forth in the Contract Documents. The Contractor and the Contractor's surety shall be liable for and shall pay to the Owner the sum stated in the Contract Documents as fixed, agreed and Liquidated damages for each consecutive calendar day (Saturday's, Sunday's and holidays included), of delay until the Work is substantially complete or, as applicable until the Work is finally complete. The Owner shall be paid the sum stated for Liquidated damages in the Contract Document. Such Liquidated damages shall be withheld by the Owner from the amounts due the Contractor for progress payments and deducted from the Contract Sum by a Construction Change Order or Construction Change Directive signed only by the Owner and the Architect.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

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

§ 9.2 Schedule of Values

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

unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.2.1 To facilitate the review of Applications for Payment, the Schedule of Values shall be submitted for review and approval on AIA Documents G702 and G703, and shall include the following:

- .1 Contractor's cost for Contractor's fee (if applicable), bonds and insurance, mobilization, general conditions, etc. shall be listed as individual line items.
- .2 Contractor's costs for various construction items shall be detailed. For example, concrete work shall be subdivided into footings, grade beams, floor slabs, paving, etc.
- .3 On major subcontracts, such as mechanical, electrical and plumbing, the schedule shall indicate line items and amounts in detail (for example: underground, major equipment, fixtures, installation fixtures, start-up, etc.)
- .4 Costs for subcontract work shall be listed without any additional mark-up of Contractor's costs for overhead, profit or supervision.
- .5 If payment for stored materials is requested prior to installation, then material and labor shall be listed as separate line items.
- .6 Contractor shall provide a report of actual versus project reimbursable expenses (general conditions), updated monthly.
- .7 The Schedule of Values approved by the Architect and accepted by the Owner shall be used as a basis for reviewing the Contractor's Applications for Payment.
- .8 A clear designation of any of the Work to be performed by the Contractor with its own employees.
- .9 A list of names and business domiciles of all Subcontractors, manufacturers, suppliers or other persons or organizations (including those who are to furnish materials or equipment fabricated for a special design) proposed for the principal portions of the Work.

§ 9.2.2 The total of all items shall equal the total Contract Sum. For a multiple building site, multiple sites or multiple locations Contract, the Schedule of Values will be allocated for each separate building, site or location.

§ 9.2.3 The Contractor shall list and identify all Subcontractors, Sub-subcontractors and suppliers with their contract amount in the Schedule of Values.

§ 9.3 Applications for Payment

§ 9.3.1 .

Monthly, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values required under Section 9.2, for completed portions of the Work. The application shall be notarized and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents. See section 9.3.1.3. Applications for Payment shall be submitted no later than the fifth (5th) day of each month for the value of labor and materials incorporated into the work and of materials, suitably stored at the site, as of the last day of the preceding month, less normal retainage, as set forth in Section 9.3.1.3. Offsite storage of materials may be allowed. See Section 9.3.2

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

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

9.3.1.3 Applications for Payment shall include a current Construction Schedule. This schedule must include the name and duration of completed tasks, name and duration of future tasks, labels on which are critical tasks, construction milestones, and actual and projected dates of all milestones, completed tasks, and future tasks.

§ 9.3.1.4 The normal retainage shall not be due the Contractor until after all of the following have occurred: (1) Substantial Completion has been achieved; (2) the Architect has prepared and the Owner has approved and accepted a Certificate of Substantial Completion, including an attached Punch List meeting the requirements of Section 9.8.4 and 9.8.5; and (3) the Contractor has submitted an Application for Payment for the retainage, (4) the Contractor has provided the Owner with a fully completed, executed and notarized Contractor's Conditional Waiver of Lien for Current Progress Payment and Unconditional Waiver of Lien for Prior Progress Payments, in the form attached to the Agreement Between the Owner and Contractor, AIA Document A101; (5) the forty-five (45) day lien period in La. R.S. 38:2242 has expired; and (6) the Contractor has provided the Owner and the Architect with an original, certified clear lien and privilege certificate issued by the Clerk of Court for the Parish in which the Project is located. If there are insufficient funds remaining in the Contract Sum to both pay the normal retainage and cover the value assigned to the Punch List (as set forth in Section 9.8.5), then the Owner shall withhold payment of the normal retainage to the extent necessary to cover the shortfall. If the value of the Punch List (as set forth in Section 9.8.5) exceeds the funds remaining in the Contract Sum, including the normal retainage, Contractor shall not be entitled to the payment of any normal retainage. Instead, Contractor and/or its Surety shall be liable for and shall pay the shortfall to the Owner.

§ 9.3.1.5 Work performed and materials supplied under a Change Order may be included for payment only after the Change Order has been approved in writing by the Owner and all other appropriate parties, as more specifically set forth in section 7.2.1 herein above.

§ 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.

9.3.2.1 Payments made on any materials or equipment not incorporated into the Work, whether on site or not, will be paid at invoice amount (invoice from vendor who provided the materials to the person or firm requesting payment on a stored basis) plus any direct insurance and transportation cost attributed to said materials. Overhead and profit markups on stored materials are not acceptable.

9.3.2.2 Certificates of Insurance shall be required of all premises proposed for use in storing materials for which payment is being required. Owner shall be listed as an additional insured on said policies, and all Certificates shall be submitted to the Architect for approval prior to a request for payment, including stored materials covered by same.

§ 9.3.3 The Contractor warrants that title to all Work will pass to the Owner at the time of payment, Substantial Completion, and delivery of possession to Owner. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.3.4 Each Application for Payment for a Progress Payment may upon request of Owner be accompanied by a fully completed, executed and notarized Contractor's Conditional Waiver of Lien for Current Progress Payment and Unconditional Waiver of Lien for Prior Progress Payments, in the form attached to the Agreement Between the Owner and Contractor, AIA Document A101. The Application for Final Payment shall be accompanied by a fully completed, executed and notarized Contractor's Unconditional Waiver of Lien Upon Final Payment, in the form attached to the

Agreement Between the Owner and Contractor, AIA Document A101. Payment Applications which omit these Waivers of Liens shall not be paid.

§ 9.3.5 The Contractor further expressly undertakes to defend the 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 job site and any improvements thereon, any portion of the property of the Owner, or any payments due the Contractor (referred to collectively as "liens" in this Section 9.3) by those providing labor, material or equipment on behalf of Contractor. The Contractor hereby agrees to defend, indemnify and save Owner harmless against any such liens or claims and agrees to pay any judgment or lien resulting from any such actions, lawsuits or proceedings and all attorney fees.

§ 9.4 Certificates for Payment

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

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

§ 9.5 Decisions to Withhold Certification

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

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence, including a Construction Schedule, that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or Liquidated Damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.
- .8 Contractor's requests for discontinuance of retainage or final payment shall be accompanied by a properly executed copy of "Consent of Surety" form. Contractor shall cooperate with Architect, Owner and Surety in establishing the correctness of this requests. Such requests shall be made in ample time as all necessary approvals must be secured before requests can be honored.
- .9 if the Project is behind

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- schedule, failure to submit a written plan indicating action by the Contractor to regain the time schedule for completion of the Work within Contract Time;
- .10** improperly completed or inadequately documented/supported Application for Payment. The omission of any required documents from the Application for Payment, including but not limited to lien waivers, all documents required herein, all documents required in the Division 01 Specifications of the Contract Documents, and all documents required elsewhere such as an approved Construction Schedule or lack of approved Schedule of Values in the Contract Documents, shall result in its rejection; or
- .11** rejection of any part of the Work by any governmental authority having jurisdiction over the Project.

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

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

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

§ 9.6 Progress Payments

After the Architect has issued a Certificate for Payment per subparagraph 9.4.1, the Owner will make payment to the contractor on or about the 10th day of each month. Payments shall reflect ninety percent (90%) of the value for projects under \$500,000 or ninety-five (95%) for projects over \$500,000, based on the contract prices, of labor and materials incorporated in the Work and of materials suitably stored in accordance with subparagraph 9.3.2 up to the second to last day of the preceding month, as estimated by the Architect, less the aggregate of previous payments.

(Paragraph deleted)

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner. La. R.S. 9:2784(A) and (C) require a Contractor or Subcontractor to make payment due to each subcontractor and supplier within fourteen (14) consecutive days of receipt of payment from the Owner. If not paid, a penalty in the amount of one half of 1% per day is due, up to a maximum of fifteen percent (15%) from the expiration date until paid. The Contractor or Subcontractor, whichever is applicable, is solely responsible for the payment of any penalty.

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

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

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

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

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be

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

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

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1

§ 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. The Architect shall determine if the Project is Substantially Complete in accordance with this Article 9.8. In addition to the requirements of the first sentence of this Article 9.8.1, the following conditions must also be satisfied before the Work will be considered Substantially Complete, unless otherwise agreed to by the Owner:

- .1 Where roofing work is part of the Contract, the Owner must receive the executed Roofing Contractor's and Roofing Manufacturer's guarantees;
- .2 All required occupancy permits must have been issued and copies delivered to the Owner;
- .3 All Project systems included in the Work must be operational as designed;
- .4 All operations and maintenance data specified has been submitted and approved, including the provision of draft as-built drawings for training purposes;
- .5 The Owner's personnel must have completed any required training in the Project's operations systems;
- .6 All finishes required by the Contract Documents must be in place;
- .7 The only remaining work must be minor in nature so that the Owner can occupy the building/construction and the Contractor's completion of that minor remaining work will not interfere with nor hamper the Owner's normal business operations;
- .8 The Contractor must certify in writing that all remaining Work will be completed within forty-five (45) consecutive calendar days, unless the Owner consents to a different time, following the date of Substantial Completion. Any remaining Work required to be performed after the date of Substantial Completion at a location that is operating and open shall be done in a manner and during times that do not interfere with operations, at no additional cost to Owner. Owner shall have the right to direct Contractor to perform said Work, at no additional cost during non-operating hours, including nights and weekends.
- .9 All warranties to be effective as of the date of substantial completion fully signed and dated.

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

Upon Substantial Completion of the Work and on the recommendations of the Architect, the Owner shall

accept the Work in accordance with the Certificate of Substantial Completion and provisions as amended of Louisiana R.S. 9:4802.1 (as to private work). The Owner shall sign the Certificate of Substantial Completion and Contractor shall cause same to be recorded in the mortgage records of the Parish of Terrebonne.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

Neither the final payment, nor any part of the retainage shall become due until the Contractor shall deliver to the Owner, a certificate by the Clerk of Court of the Parish of Terrebonne that the Substantial Completion Certificate has been recorded and more than forty-five (45) days has elapsed since said recording indicating no liens have been recorded affecting this project, all punch list work has been completed and accepted, and all affidavits, consents, releases and waivers specified in subparagraph 9.10.2 have been provided.

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

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents. The Punch List of exceptions prepared by the Architect shall itemize additional Work remaining to be done by the Contractor, and the dollar value related thereto. The Cost of these items shall be prepared in the same format as the Schedule of Values. The monetary value assigned to this Punch List will be 125% of the sum of the cost estimate for each particular item of required work, and will be estimated by the Architect based on the mobilization, labor, material and equipment costs of correcting the item. The value assigned to the Punch List shall be retained from the monies owed the Contractor, above and beyond the normal retainage. No funds assigned for the Punch List value shall be due to the Contractor before the Punch List items are completed and accepted by the Architect and the Owner. If the dollar value of the Punch List exceeds the amount of funds, less the retainage amount, in the remaining balance of the Contract, then the Project shall not be accepted as Substantially Complete. If funds remaining in the Contract are less than that required to complete the Punch List Work, then the Contractor or its Surety shall pay the difference.

§ 9.8.6 The Contractor shall complete the Punch List items within forty-five (45) consecutive calendar days from the date of Substantial Completion. The Owner may, as its option, consent to a different time, but such consent shall be reflected in writing. If the Contractor fails to complete all Punch List items within this forty-five-day period, through no fault of the Owner or the Architect, the Contractor shall be assessed Liquidated Damages in the amount set forth in the Agreement between the Owner and Contractor (AIA Document A101), for each additional day beyond that forty-five (45) day period that the Punch List remains incomplete. Additionally, if the Contractor fails to complete all Punch List items within this forty-five-day period, through no fault of the Owner or the Architect, then the Owner may hold the Contractor in default. If the Owner finds the Contractor is in default, the Surety shall be notified. If within forty-five (45) days after notification of the Surety by the Owner, the Surety has not completed the Punch List, through no fault of the Architect or Owner, the Owner may, at his option, contract with an outside party to have the balance of the Work completed and pay for such Work with the unpaid funds remaining in the Contract Sum. Finding the Contractor in default shall constitute a reason for disqualification of the Contractor from bidding on future Owner contracts. If the Surety fails to complete the Punch List within the stipulated time period, the Owner may choose to not accept bonds submitted from the Surety in the future.

§ 9.8.7 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. After such acceptance, and consent of surety, the Contractor may submit to the Owner a properly completed and supported Application for Payment seeking payment of completed Work, less the value assigned to the Punch List items, as set forth in and limited by Section 9.8.5 above. Such Application for Payment shall not request payment for Work that is incomplete and/or not in accordance with the requirements of the Contract Documents.

§ 9.8.8 After the Owner's receipt and approval of a fully executed Certificate of Substantial Completion and attached Punch List, the Owner may issue a Notice by Owner of Acceptance of Work. The Contractor shall record the Certificate of Substantial Completion or Notice by Owner of Acceptance of Work with the Clerk of Court for the Parish in which the Project is located, and shall provide written evidence of recordation to the Architect and the Owner's representative. If the Notice of Acceptance has not been recorded within seven (7) days after issuance, the Owner may record the Notice of Acceptance at the Contractor's expense.

§ 9.9 Partial Occupancy or Use

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

§ 9.9.1.1 Occupancy by the Owner shall not be construed by the Contractor as being an acceptance of that part of the Project to be occupied.

§ 9.9.1.2 Occupancy by the Owner shall not be deemed to constitute a waiver of existing claims on behalf of the Owner or the Contractor against each other.

§ 9.9.1.3 If the Project consists of more than one building, and one of the buildings is to be occupied, the Owner, prior to occupancy of that building, shall secure permanent property insurance on the building to be occupied, as well as any necessary permits that may be required for occupancy and use.

§ 9.9.1.4 Use and occupancy by the Owner prior to Project acceptance shall not relieve the Contractor of the responsibility to maintain all insurance and bonds required of the Contractor under the Contract Documents until the entire Project is completed and accepted by the Owner.

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

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

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.2.1 In addition to the items listed in Section 9.10.2, the Contractor shall deliver the following items to the Architect within forty-five (45) days following the date of Substantial Completion. Neither final payment nor any remaining retained percentage shall become due until the Contractor submits all of the required documents and information.

1. All close-out submittals specified in the Specifications.
2. All project record documents specified in the Specifications.
3. All approved submittals.
4. All approved Shop Drawings.
5. All final as-built Drawings, in both paper and electronic (pdf) format.
6. All operations and maintenance data specified in the Specifications.
7. All warranties as required on specific products or portions of the Work, including subcontractor warranty letters.
8. All spare parts, overages, and maintenance materials specified in the Specifications.
9. Certificates of Occupancy from authorities having jurisdiction.
10. Copies of all inspection tags from authorities having jurisdiction.
11. Executed Certificates of Substantial Completion.
12. A fully completed, executed and notarized Contractor's Unconditional Waiver of Lien Upon Final Payment, in the form approved by the Owner.
13. Clear lien certificate from the Clerk of Court.

§ 9.10.2.2 Upon receipt by the Architect of all Project close-out documents and a recommendation by the Architect of acceptance of Final Completion, a close-out meeting will be scheduled by the Architect, to include the Architect, the Owner and the Contractor for the review and acceptance of all of the required items identified in this Section 9.10.2. If all items are complete and accepted by the Owner, the Owner will then authorize the issuance of Final Payment.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

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

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or

- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.
- .5 any Work found not to be done in accordance with the Contract Documents during the one-year Correction period;
- .6 Liquidated damages; or
- .7 latent defects.

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

§ 9.11 Liquidated Damages

As more specifically set forth in AIA Document A101, Agreement Between Owner and Contractor, as modified by the Owner, the Contractor's failure to achieve Substantial Completion within the Contract Time, as set forth in the Contract Documents shall result in the imposition of Liquidated Damages upon the Contractor. As further set forth in the Agreement, and in Sections 8.2.4 and 9.8.6 above, it is mutually agreed by the Contractor and Owner that the Owner's operations will be negatively impacted and the Owner will sustain damage that will be impracticable and extremely difficult to quantify if Substantial Completion of the Project is not achieved within the time set forth in the Agreement. The Contractor and the Contractor's Surety shall be liable for and shall pay to the Owner Liquidated Damages, which shall not be considered a penalty, in the amount stated in the Contract Documents as fixed, agreed upon and Liquidated Damages for each calendar day (Saturdays, Sundays, and legal holidays included) that Substantial Completion is delayed beyond the time stated in the Agreement. The Owner shall be entitled to collect any and all sums that are due the Owner as Liquidated Damages in any manner available, including but not limited to withholding the amounts due to the Contractor for Progress Payments or Final Payment, deducting the Liquidated Damages due by a Change Order or Construction Change Directive, or collecting the amounts due from the Contractor or the Contractor's Surety. The Contractor and the Contractor's Surety hereby agree and will be held liable for any Liquidated Damages imposed in accordance with these Contract Documents.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

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

§ 10.2 Safety of Persons and Property

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

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
- .4 the indoor air quality of buildings where the Owner's students, teachers, employees and visitors are present;
- .5 the exhaust systems and existing fresh air intake devices to prevent dust or fume caused by the Work to enter such systems; and
- .6 the Contractor expressly agrees that it is exclusively responsible for compliance with the Occupational Safety and Health Act ("OSHA") and State and local regulations for the construction in that it is the "employer" within the meaning of those regulations. It is the expressed intent of the parties that the Contractor, and not the Architect, the Owner, or the Owner's Project Manager, is in charge of the Work. Any provision in the Contract Documents in conflict with this paragraph shall be null and void.

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

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards. Contractor shall provide for the marking of all underground utilities prior to any digging, excavation or other disturbances of earth and provide the Louisiana One Call reference number to the Architect and the Owner's representative. The Contractor expressly agrees that it is exclusively responsible for compliance with the Occupational Safety and Health Act (OSHA) and state and local regulations for the construction in that it is the "employer" within the meaning of those regulations. It is the expressed intent of the parties that the Contractor, not the Architect nor the Owner, are in charge of the Work. Any provision in the Contract's Documents in conflict with this paragraph shall be null and void.

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

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

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect. Contractor shall immediately make an oral report to the Architect and the Owner's representative and promptly provide a written report to the Architect and the Owner's representative, about all accidents arising out of or in connection with the Work that cause death, personal injury, interrupt utility services or property damage.

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

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding three (3) days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter. This notice does not replace nor supplant the shorter notice required by Section 10.2.6 above.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner, the Owner's Project Manager and Architect of the condition. Microbials are not considered to be hazardous for the purposes of this Section; however, the Contractor should notify the Owner's representative and Architect of the presence of microbials on building components, in writing, in any affected area of a Project. The Owner is responsible to assess any area of a Project where microbials are observed. The Owner will provide for remediation of microbials in any affected area of a Project. The Owner will advise the Architect and Contractor upon completion of the remediation of any affected area due to the presence of microbials in an area. There are no clear standards set regarding exposure levels for microbials

since microbials are generally present everywhere. If the presence of microbials in an area of a Project does not affect the remaining areas of a Project, the Contractor shall continue with work in all unaffected areas of a Project.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

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

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

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

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

§ 10.4 Emergencies

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

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

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

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located. Owner, Owner's Project Manager, and Architect shall be named as additional insured on these policies.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 **Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

11.1.5 The Contractor's minimum limits of liability which he shall also require from his subcontractors unless he shall insure their operations under his policy, are as follows: (Contractor shall include Owner and Architect as additional insured on all policies carried for this project).). All policies shall be written on a primary, non-contributory bases without regard to any other valid insurance coverage. For any claims related to the job to which this document applies, the **Contractor's insurance coverage shall be primary** insurance as respects to the **Owner**, and their employees, officers, directors, and volunteers (collectively "OWNER"). Any insurance or self-insurance maintained by the **Owner** shall be excess of the **Contractor's** insurance and the **Owner's** coverage shall not contribute with it.

COMPREHENSIVE GENERAL LIABILITY

A.	Limit of Liability	
	Personal injury - per occurrence	\$1,000,000
	General policy aggregate (If applicable)	\$2,000,000
	Premises / Operations	
	Per occurrence (BI & PD)	\$1,000,000
	Per aggregate (BI & PD)	\$1,000,000
	Products / Completed Operations	
	Per occurrence (BI & PD)	\$1,000,000
	Per aggregate (BI & PD)	\$1,000,000
B.	Endorsements:	
	1. Explosion, collapse and underground (if applicable)	
	2. Contractual	
	3. Independent contractors	
	4. Medical payments - \$5,000 limit per person	
	5. Board from CGL Endorsement	
	6. South Central Louisiana Human Services Authority named as Additional Insured	
	7. Waiver of Subrogation in favor of South Central Louisiana Human Services Authority	
	8. Pollution exclusion removed for Sudden & Accidental (Fuel, oil, Lube, and chemical vendors)	
	9. 30-day Notice of Cancellation	
	10. CG 20 10 "Ongoing" Operations	
	11. CG 20 37 "Completed Operations	

STANDARD WORKER'S COMPENSATION

Init.

- A. Limits of Liability:
Coverage A - Statutory requirements
Coverage B - \$1,000,000 employers' liability per accident/per disease/per employee.
- B. Endorsements:
 1. USL&H
 2. Waiver of Subrogation in favor of South Central Louisiana Human Services Authority (as required by contract)
 3. Alternate employer's or master servant endorsement
 2. Maritime (If Applicable) - \$1,000,000 limits
 3. 30-day Notice of Cancellation

AUTOMOBILE LIABILITY

- A. Limits of Liability:

Bodily Injury - Per Person	\$1,000,000
Bodily Injury - Per Accident	\$1,000,000.
Property Damage	\$1,000,000
BI and PD combined	\$1,000,000.
- B. Endorsements:
 1. Hired automobile liability
 2. Non-ownership liability
 3. South Central Louisiana Human Services Authority named as Additional Insured
 4. Waiver of Subrogation in favor of South Central Louisiana Human Services Authority
 5. 30-day Notice of Cancellation

EXCESS LIABILITY

- A. Umbrella form
 1. Limit of liability - \$1,000,000 each occurrence

OTHER REQUIREMENTS

- A. Suitable coverages may be required if special conditions or exposure exist. (I.e. Marine coverages, Property exposures, etc.)
- B. Contractor shall furnish the Owner with certificates of insurance, evidencing required amendatory endorsements or copies of the applicable policy language effecting coverage required by this clause. All certificates and endorsements are to be received and approved by the Owner including renewal evidence prior to expiration. Failure to provide and maintain the required insurance coverage throughout the term of the Agreement shall be a material breach of the Agreement, and shall entitle Owner to all remedies provided for in the Agreement, any Amendment(s) thereto, or by operation of law.
- C. All policies are required to be on occurrence form basis, except those lines generally written ONLY on claims-made forms (i.e. Professional, Errors & Omissions, etc.)

11.1.6 The Contractors are responsible for any damage as a result of the Work, operations, acts, omissions, neglect, equipment failure, or other causes arising out of their contract, including such damage as may be caused by or resulting from water. Insurance for hazards, other than protected by insurance specified, is at the Contractor's option.

11.1.7 ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers with an A.M. BEST'S RATING OF NO LESS THAN A:VI. This requirement will be waived for workers' compensation coverage only for those contractors whose workers' compensation coverage is placed with companies who participate in the State of Louisiana Workers' Assigned Risk Pool or Louisiana Workers' Compensation Corporation.

11.1.8 PROPERTY INSURANCE

The Contractor shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. This insurance shall include the interests of the Owner, Architect, Contractor, Subcontractor, and Sub-Subcontractor in the Work and shall insure against the perils of fire and extended coverage and shall include "all-risk" insurance for physical loss or damage, including, without duplication of coverage, theft, vandalism, and malicious mischief. Coverage shall include ten percent (10%) of completed value to cover the cost of Architect's fees, should the project have to be rebuilt as a result of a covered peril. The policy shall either name the Owner as a co-insured or contain an endorsement providing that the insurer shall have no right to be subrogated to claims against the Owner.

11.1.9 In the event of loss, deductibles if any, shall be paid by the Contractor.

11.1.10 The Contractor shall provide its own insurance coverage for portions of the work stored off-site after written approval of the Owner at the value established in the approval and also portions of the Work in transit.

11.1.11 PERFORMANCE BOND AND PAYMENT BOND

The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. The cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100 percent of the Contract Sum.

§ 11.2 Owner's Insurance

The Contractor shall maintain in effect until final acceptance of the Work, an Owner's Protective Liability Policy in which the Owner shall be named as insured and in which the Owner's Program Manager and the Architect shall be named as additional insured, protecting the insured against liability arising from operations under this Contract, including any liability arising from the construction observations of the Owner, or his representative, or Architect. This policy shall not cover liability arising from errors in drawings and specifications prepared by the Architect.

(Paragraph deleted)

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

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

§ 11.3 Waivers of Subrogation

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

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

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

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

§ 11.5 Adjustment and Settlement of Insured Loss

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

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

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

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

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect or the Owner's Project Manager may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be

entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

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

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition.

During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5. Additionally, if the Contractor fails to correct the non-conforming or defective Work, the Owner may hold the Contractor in default, notify the surety, and require the surety to perform and/or pay for the corrective work

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

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

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

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

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work. (see, La. R.S. 38:2189).

§ 12.2.6 The Owner shall have the right to operate non-conforming equipment until defects are corrected and warranties are met; and the Owner shall have the right to operate rejected equipment until replaced, without charge for depreciation, use, or wear

§ 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 and Jurisdiction

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. Exclusive jurisdiction shall be the 32nd Judicial District Court, Terrebonne Parish, State of Louisiana.

§ 13.2 Successors and Assigns

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

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

§ 13.3 Rights and Remedies

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

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

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

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

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

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

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

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

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear no interest.

§ 13.6 Preconstruction, Progress and Coordination Meetings

§ 13.6.1 A Pre-Construction meeting shall be held prior to the Notice to Proceed. The following shall be in attendance: Owner, Architect and its Consultants, Contractor and Superintendent, major Subcontractors and representatives of separate Contractors, when applicable. The Contractor shall submit to the Architect and the Owner's representative prior to or at the preconstruction meeting the following: (1) list of major Subcontractors and their phone numbers, (2) a list of Subcontractors' Superintendent and Project Manager with 24 hour phone numbers, (3) (CPM) Construction Progress Schedule both in the written and electronic formats (both native and pdf) submittal schedule, and (4) Schedule of Values.

§ 13.6.2 Progress and coordination meetings will be held monthly or more often as designated by the Owner or Architect on site or as changed in writing by the Owner's representative or Architect. The Contractor shall distribute minutes of each meeting to all participants within seven (7) days of each meeting. The following are expected to attend: The Contractor represented by its Project Manager or principal, the Contractor's Project Superintendent, the Sub-contractors and material suppliers requested by the Owner's representative or Architect

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

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

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

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

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit earned up to the time of termination and no other damages on Work not executed, and costs incurred by reason of such termination. The Contractor shall not be entitled nor allowed consequential damages or loss of profit or overhead or attorney fees for any portion of the Work of the Contract that has not been performed.

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

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

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

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished. Termination by the Owner shall not suspend assessment of Liquidated Damages against the Contractor or Surety.

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

14.2.5 If an agreed sum of Liquidated Damages has been established, termination by the Owner under this Article shall not relieve the Contractor of his obligations under the Liquidated Damages provisions and the Contractor shall be liable to the Owner for these per diem charges.

§ 14.3 Suspension by the Owner for Convenience

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

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

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1

The Owner may, at any time, terminate the Contract in whole or in part for the Owner's convenience and without cause. Termination by the Owner under this Paragraph 14.4 shall be by a notice of termination delivered to the Contractor, specifying the extent of termination and the effective date.

§ 14.4.2

Upon receipt of a notice of termination, the Contractor shall immediately, in accordance with instructions from the Owner, proceed with performance of the following duties regardless of delay in determining or adjusting amounts due under this Paragraph 14.4:

1. cease operations as specified in the notice;

2. place no further orders and enter into no further subcontracts for materials, labor, services or facilities, except as necessary to complete portions of the Contract not terminated;
3. terminate all subcontracts and orders to the extent they relate to the Work terminated;
4. proceed to complete the performance of Work not terminated;
5. take action that may be necessary or that the Owner may direct for the protection and preservation of the terminated work.

§ 14.4.3

The amount to be paid to the Contractor by the Owner because of the termination shall consist of:

1. for Work performed and for Work in process on or off the site to the extent completed on the terminated portion of the Contract before the effective date, the cost of that Work and the expense of settling and paying termination costs under the terminated subcontracts and purchase orders that are properly chargeable to the terminated portion of the Contract;
2. the reasonable costs of settlement of the Work terminated, including accounting, legal, clerical and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data; additional costs of termination and cancellation charges and settlement of subcontracts not already allowed under Clause 14.4.3.1; and storage, transportation and other costs incurred which are reasonably necessary for the preservation, protection or disposition of the terminated Work; and
3. a 5% profit on the Work contracted for.

14.4.4 Allowance shall be made for previous payments to the Contractor for the terminated portion of the Work, and Claims settled or pending under ARTICLE 4 between the Owner and Contractor, and for the value of materials, supplies, equipment and other items that are part of the cost of the Work to be disposed of by the Contractor.

14.4.5 The term "cost" as used in this Paragraph 14.4 shall be listed in Subparagraph 7.3.6

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

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

§ 15.1.2 Time Limits on Claims

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

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

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

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

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

§ 15.1.5 Claims for Additional Cost

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

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary. Adverse weather conditions on a scheduled work day shall only result in claims for additional time, and not constitute grounds for adjustment to the Contract Sum. No monetary damages for weather-related days shall be allowed or granted. A claim for an increase in the Contract Time for adverse weather will only be considered when said weather affected critical path activities, as identified on the approved baseline schedule.

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

Average rainfall for the area, according to the United States Department of Agriculture, Houma Substation records for the preceding five (5) years shall not be a cause for an extension of the Contract Time. Any rainfall above the average that hinders normal work on the Project Site which the Architect determines may justify a delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine. The following are considered reasonably anticipated average days of adverse weather on a monthly basis:

January	10 days	July	17 days
February	9 days	August	12 days
March	7 days	September	10 days
April	6 days	October	7 days
May	7 days	November	8 days
June	11 days	December	11 days

§ 15.1.6.3 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. Contractor's first Claim for Additional Time due to adverse weather may be submitted only after the total adverse weather days exceed the allowable days as stated in Section 15.1.6.2 above. The claim must be submitted within seven (7) calendar days of the end of the month in which the cumulative total is first exceeded and is fully document for the cumulative total of adverse weather delays resulting in the total exceeded allowed days.

Thereafter, Contractor shall submit any such claim for additional time due to adverse weather monthly within seven (7) calendar days of the end of the month. Adverse weather conditions on a scheduled work day shall only result in claims for additional time and an adjustment in the Contract Time only. Adverse weather delay days will be granted for weekends or holidays, that have advance written work notifications from Contractor to Architect or Owner. A claim for an increase in the Contract Time will only be considered for critical path activities, as identified on approved baseline schedule.

§ 15.1.6.4 If unsuitable ground conditions are the result of Contractor's failure to properly grade and/or maintain the grounds, no additional time shall be granted.

§ 15.1.7 Waiver of Claims for Consequential Damages

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

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

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

§ 15.2 Initial Decision

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

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

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

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

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

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

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

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

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

§ 15.3 Mediation

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

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

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

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

§ 15.4 Arbitration

§ 15.4.1 Notwithstanding anything to the contrary contained in any of the Construction Documents, the Owner shall not be required to submit any claims, dispute, or other matter in question between it and any other party for arbitration, nor shall the Owner be subject to arbitration over its objection, whether said arbitration procedure is commenced directly against the Owner by any claimant or indirectly by joinder or third-party action.

(Paragraphs deleted)

ARTICLE 16 EQUAL OPPORTUNITY

§ 16.1 Contractor and all Sub-contractors shall not discriminate against any employee or applicant for employment because of race, color, sex or national origin. The Contractor shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not limited to the following; employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the policies of non-discrimination.

§ 16.2 The Contract and all Sub-contractors shall in all solicitations or advertisement for employees place by them or on their behalf state that they qualified applicants will receive consideration for employment without regard to race, religion, sex or national origin.

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ARTICLE 17 VERIFICATION OF EMPLOYEES INVOLVED IN PUBLIC CONTRACT WORK

The Contractor shall comply with the provisions of La. R.S. 38:2212.10(C) and continue during the term of this contract to utilize a status verification system to verify the legal status of all new employees in the State of Louisiana or as otherwise required under the statute and to require all subcontractors to verify compliance with La. R.S. 38:2212.10(C).



Additions and Deletions Report for AIA® Document A201® – 2017

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PAGE 1

South Central Louisiana Human Services Authority
New Office Build Out
805 Barrow St
Houma, Louisiana 70360

...

South Central Louisiana Human Services Authority
158 Regal Row
Houma, Louisiana

...

Archestrate LLC
1340 West Tunnel Blvd. Suite 420
Houma, Louisiana 70360

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

...

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In the event of a discrepancy in the Contract Documents, the more specific and more detailed requirement shall take precedence over the general and less detailed requirement. In case of doubt, the Contractor shall assume that the Owner intends that the more complete method, system, or process is required. Any work, labor, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce a functionally complete Project or part thereof shall be supplied by the Contractor at no additional cost to the Owner, regardless of

whether it is specifically stated in the Contract Documents. Any reference to standard specifications, manuals, codes of any technical society, group, organization, or association, or to the laws or regulations of any governmental authority, whether such reference is specific or by implication, shall mean the latest or most recent standard specifications, manual, code, laws, or regulations in effect at the time of the opening of bids (or the date of the Contract if not advertised for bids), unless otherwise specifically stated. However, no provision of any standard specification, manual, or code shall be effective to change the duties or the responsibilities of the Owner, Contractor, or Architect (or any of their consultants, agents, or employees) from those set forth in the Contract Documents. In the event of conflict, the Architect may interpret or construe the documents so as to obtain the most substantial and complete performance of the Work consistent with the Contract Documents and reasonably inferable therefrom, in the best interest of the Owner.

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§ 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. 1.2.4

The Word "Provide" shall mean furnish and install, and shall include, without limitation, all labor, materials, equipment, transportation, services, and other items required to complete the referenced tasks.

1.2.5 All items indicated "N.I.C." (Not in Contract) on the Drawings or in the Specifications are items either furnished, installed, and connected by the Owner, or excluded from the Contract.

1.2.6 All items indicated "By Owner" on the Drawings or in the Specifications are to be furnished and unloaded at the site by the Owner, in a location as directed by the Contractor. The Contractor shall move such items to the location of use in the buildings. The installation and/or service connections of this equipment shall be the responsibility of the Contractor, as set forth under contract documents.

1.2.7 Where the project is located in a parish of the State of Louisiana, the Contractor, at his own expense, shall record the Contract and bond or bonds required with the Clerk of Court or the Recorder of Mortgages of that Parish before the work commences. The Contractor shall have four (4) Additional copies of such stamped with book number and folio for his, Owner and Architect's files.

...

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. If there is a conflict in the terms and conditions in the Contract Documents, the more stringent requirements shall govern.

...

§ 1.5.1 ~~The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The~~

1.5.1 The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights. Ownership of the drawings, specifications, and other instruments of services shall be pursuant to LA R.S. 38:2317.

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§ 2.1.3 The Owner, at its sole discretion, may require that the Contractor, all subcontractors, and material suppliers provide sworn lien releases on the Owner's forms with each of the Contractor's pay applications. The Owner reserves the right to withhold progress payments until such lien releases are received for all Work for which prior progress payments have been made to the Contractor. The Owner shall have the sole right to require the Contractor, all subcontractors, and all material suppliers to provide such releases with every Contractor's payment request until Final Acceptance of the Project.

§ 2.2.1 The Owner, being a political subdivision of the State of Louisiana, must have funds in the full amount of the Contract on hand prior to the award and execution of the Contract Documents. Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

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

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§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after ~~seven (7)~~ fifteen (15) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

...

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work. The Contractor shall confirm and verify the location of each utility required for the Project and make further investigation of all structural, surface, and subsurface conditions including any soil borings of the site of the Project

...

§ 2.3.6 ~~Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.~~ The successful Contractor shall obtain copies of the Bidding and Contract Documents by downloading them from the internet (www.centralbidding.com), purchasing Contract Documents from a reprographer registered with the electronic plan distribution website, or via non-editable electronic format (pdf) from the Architect.

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If the Contractor fails to correct Work or a portion of the Work or the Work at one or more sites in a multiple site Project 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, or fails or refuses to provide a sufficient number of properly supervised and coordinated labor or amount of materials or equipment to complete the Work within the Contract Time, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3. Stoppage of the Work by the Owner pursuant to this Subsection shall not result in a claim by the Contractor for delay or for any extension of the Contract Time

...

§ 2.6 Owner's Right to Audit

The Contractor shall keep full and accurate records of all costs incurred and items invoiced in connection with the Work and shall keep and maintain all records related to this Project, for a period of five (5) years after Final Payment, or five (5) years after any Grant close-out (if applicable), whichever is longer. The Contractor shall require the same of its subcontractors, suppliers, or any entity involved in the Project or Work. Such records of the Contractor and its subcontractors shall be open to audit by the Owner and/or its authorized representatives, and by the Legislative Auditor for the State of Louisiana, during the performance of the Work and during the referenced five (5) year period.

§ 2.7 Contract Administration

The Owner has retained the Architect, Engineer, or other design professional to design the Project. Such professional has the responsibility to administer the Contract for Construction, including inspection by himself and his consultants. No responsibility for services contracted to the Architect, Engineer, or Contractor shall be shared by the Owner or its Project Manager.

...

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents. Documents, and in accordance with any industry or quality standards.

§ 3.1.3

The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Owner's Project Manager or 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. Quality control (i.e. ensuring compliance with the Contract Documents) is the responsibility of the Contractor. Testing, observations and or inspections performed or provided by the Owner are for quality assurance (i.e. confirming compliance with the Contract Documents) purposes and are solely for the benefit of the Owner.

§ 3.1.4 The Contractor stipulates and agrees that the Owner has no duty to discover any design errors or omissions in the Drawings, Plans, Specifications, and other Documents and has no duty to notify Contractor of the same. The Contractor acknowledges that the Owner does not warrant the adequacy and accuracy of any Drawings, Plans, Specifications or other Documents.

§ 3.1.5 The Contractor will establish to the satisfaction of the Architect the reliability and responsibility of the Subcontractors to furnish and perform the Work described in the sections of the Specifications pertaining to the Subcontractor's respective trades. See Section 5.2 for the procedures regarding Subcontractors.

§ 3.1.6 The Contractor or its designated representative shall attend all periodic construction meetings scheduled by the Architect or Owner's Project Manager when its presence is required and any meeting with the Owner when its presence is required.

§ 3.1.7 The Contractor is solely responsible for providing a safe place for the performance of the Work.

§ 3.1.8 The Contractor shall comply with the provisions of the Louisiana Underground Utilities and Facilities Damage Prevention law, R.S. 40:1749.11 et seq., as amended prior to proceeding with any portion of the Work that may require excavation including but not limited to pile driving, digging, auguring, boring, backfilling, dredging, compressing, plowing-in, trenching, ditching, tunneling, land leveling, grading and or mechanical probing. Damage to any existing underground utilities by the Contractor shall be repaired at the Contractor's sole cost and expense. Such damage must be reported immediately to the Architect and the Owner's representative. The Contractor shall undertake to make such further investigations, including without limitation, all structural, surface and subsurface conditions, including soil borings and otherwise of the Project site, regardless of whether or not shown in the Contract Documents.

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§ 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. In the event the Owner or the Architect notify the Contractor of any such acts or omissions, The Contractor shall immediately cure such acts or omissions, or results thereof.

...

3.3.4. Nothing contained herein shall relieve Architect of any duties or obligations owed to Owner.

§ 3.3.5 The Contractor shall review any survey provided and establish the building grades, lines, levels, column, wall and partition lines required by the various subcontractors in laying out their work, including but not limited to, all underground work in accordance with the Contract Documents. The Contractor shall properly and effectively coordinate the timing, scheduling and routing of all Work performed by all trades and subcontractors.

§ 3.3.6 Before ordering any material or performing any work, Contractor shall verify dimensions and check conditions to ensure that they properly reflect those on the Drawings. Any inconsistency shall be brought to the attention of the Architect. If discrepancies occur between ordered material and actual conditions, of which the Architect was not notified beforehand, costs to correct such discrepancies shall be borne by the Contractor.

§ 3.3.7 On trench excavations more than five feet in depth, the Contractor shall bear sole responsibility for design and execution of acceptable trenching and shoring procedures in accordance with State regulations and OSHA 29 CFR 1926, Subpart P, Inspection Procedures for Enforcing the Excavation Standards. Contractor shall engage the services of a qualified engineer, licensed to practice in the state where the Project is located, to prepare detailed plans and specifications directing Contractor in safe execution of trenching and shoring.

...

§ 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. The Owner shall have the right to remove any unfit person from the Project. For a Project site that includes a work in session with children present in or adjacent to the Project, the Contractor’s employees and its Subcontractors’ employees may be subject to a criminal background check as set forth in La. R.S. 17:15 and La. R.S. 15:587.1 or any other laws, upon the request of the Owner. Any unfit person based on a background check shall be immediately removed from the Project site. The Contractor’s employees, and all other persons including all Subcontractors, Sub-subcontractors and suppliers carrying out any work on the Project site required by the Contract Documents, shall wear appropriate identification on their shirt always when on the Project site. The Owner shall not be responsible or liable to Contractor or any subcontractor for any additional costs, expenses, losses, claims or damages incurred by Contractor or Subcontractor as a result of any removal of an unfit person or compliance with this section.

3.4.4 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 1 of the Specifications).

3.4.5 By making requests for substitutions based on Subparagraph 3.4.4 above, the Contractor:

1. represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respect to that specified;
2. represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
3. certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect’s redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and

4. will coordinate the installation of the accepted substitute, making such changes as may be required in accordance with the manufacturer's installation guidelines and for the Work to be complete in all respects.

3.4.6 Should a Contractor propose a substitute material or method assembly that is of questionable quality to the Architect, suitable tests may be required to establish a basis for acceptance or rejection. Such tests will be paid for by the Contractor and conducted in accordance with Article 13.5, Tests and Inspections.

3.4.7 Architect's decision on all substitution requests is final and binding.

§ 3.4.8 Building materials, including but not limited to, all drywall materials to be incorporated into the Work shall either be certified, in writing, by the manufacturer to be asbestos free or be inspected and tested by accredited testing laboratories and certified to be free of asbestos content in accordance with the applicable federal standards, including but not limited to the Asbestos Hazard Emergency Response Act (AHERA) and the Toxic Substance Control Act (TSCA). The word "asbestos" means the Asbestiform, Tremolite, and Actinolite. Copies of test reports shall be furnished to the Architect and the Owner's representative. Material discovered to contain asbestos shall be removed immediately at the Contractor's sole cost and expense using current standards of the Louisiana Department of Environmental Quality (DEQ). Drywall materials must be free of any volatile chemicals that have identified emissions of sulfurous gases.

PAGE 17

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. The Contractor's warranty includes any and all specific warranties set forth in the Contract Documents and all warranties provided by law including, but not limited to any actions or claims that may be asserted as provided in La. R. S. 38:2189. Nothing herein or otherwise provided in the Contract Documents limits in any way all warranties allowed by law.

PAGE 18

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

§ 3.6.2 In the event the Contract Documents designate the Project for exemption of sales and use taxes, the Contractor is informed that La. R.S. 47:301(8)(c) exempts the State of Louisiana, cities, parishes and other political subdivisions and their agencies, boards and commissions from state and local sales and use taxes. The Contractor is hereby made aware that materials and equipment which are affixed to and made a part of the Project such that they become immovable property and permanently incorporated into the Project or Work may qualify for the exemption. The Contractor as an Agent of the Owner shall execute any documentation required to effectuate this exemption. The Contractor is still responsible for payment of all taxes on nonexempt items necessary in the construction of the Project.

§ 3.6.3 After the Contract is executed, the Owner will furnish the Contractor a Louisiana Department of Revenue Form R-1020 entitled "Designation of Construction Contractor as Agent of Governmental Entity and Exemption Certificate" for use by the Contractor, Subcontractors, and Material Suppliers for the Project which is required by the State of Louisiana Department of Revenue and Taxation, Sales Tax Division.

§ 3.6.4 If designated and in accordance with La. R.S. 47:301(8)(c), the Contractor shall not pay any State or local sales taxes or State or local use taxes on materials and equipment which are affixed to and made a part of the real estate of the Project or Work (hereinafter referred to as "exempt items").

§ 3.6.5 All purchases of "exempt items" for the Project shall be made by the Contractor on behalf of and for the Owner.

§ 3.6.6 Payment requests for materials and equipment that are tax exempt shall be submitted separately but at the same time with progress payment requests. The payment request shall include a description of each item purchased, name of supplier, invoice number and date, and the cost of each item excluding taxes. The "Tax Exempt" payment requests shall not include any amount for the Contractor's or Subcontractor's labor. Copies of invoices shall be attached to the Progress Payment request.

§ 3.6.7 When applicable and the exemption is exercised, the Contractor and all Subcontractors shall record all purchases of materials and equipment to be permanently installed or permanently incorporated into the Work. Preparing, maintaining and preserving these records shall be in accordance with applicable State laws and local ordinances and resolutions except that the records shall be preserved for not less than five (5) years from the date of Final Payment. In addition to making the records available to the Louisiana Department of Revenue and Taxation and/or local taxing authorities, copies of the records shall also be made available to the Owner upon request.

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3.7.4.1 Nothing contained herein shall relieve Architect of any duties or obligations owed to Owner.

...

~~§ 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.~~

§ 3.8.1 The Contractor shall include in the Contract Sum any cash allowances stated in the Contract Documents and as may be allowed by La. R.S. 38:2212(K) limited to hardware, face brick, landscaping, electrical light fixtures, miscellaneous steel, tile, wallpaper and other exterior finishes, fixtures and furnishings, and carpeting, or other 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.

...

§ 3.8.4 If any materials are specified as to quantity only, such are not considered a cash allowance. The provisions stated in the information in the Specifications about any quantity will be applicable regarding any credit to the Owner.

§ 3.9.1 The Contractor shall employ a competent Project Manager, a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. ~~The The Project Manager, and if no Project Manager,~~ the superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing.

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§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The date of Commencement to begin the Work is the date set forth in the Contract or such other date as may be established in a Notice to Proceed. The schedule must show a completion of the Work within the Contract Time. A schedule showing early completion dates will not be

accepted without written acceptance of the Owner. 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. The Schedule may be used as a means of determining the Contractor's progress in performance of the Work, but neither the Contractor by providing the schedule to the Architect and Owner, nor its acceptance or use by the Architect or Owner, acts in any way to relieve the Contractor of any of the Contractor's obligations under the Contract. All float is owned by the Owner. The schedule shall include a network analysis to identify those tasks that will lengthen the Project completion date

...

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect. If the work is not on schedule as determined by the Architect and the Contractor fails to take action to correct, then the Contractor shall be deemed in default and the progress of the Work shall be deemed unsatisfactory. Such default may be considered as a ground for termination by Owner for cause in accordance with Section 14.2.

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The Contractor shall review, approve and stamp all Shop Drawings Product Data and Samples prior to submitting to the Architect. Failure to comply with this requirement will cause Shop Drawings to be returned unreviewed. Submittals shall be made with reasonable promptness and in such sequence as to cause no delay in the Work or in the Work of the Owner or any separate Contractor. Submittals involving the selection of color and/or finish shall be coordinated to allow all colors and/or finishes to be selected at once.

§ 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.

§ 3.12.7 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. Should the Contractor, subcontractor or sub-subcontractor install, construct, erect or perform any portion of the Work without approval of any required submittal, the Contractor shall bear the cost, responsibility and delay for removal, replacement and/or correction of any and all items, materials and/or labor.

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3.12.11 All Shop Drawings and Schedules prepared for this project shall be submitted in the form of electronic submittals . Each drawing shall have a clear space of 4" x 5" for Architect's approval stamp. Submittals shall be transmitted electronically. Shop Drawings and transmittal letter shall be identified with title and location of the project, Architect, Contractor, submission date, specification section number and detail number to which the Shop Drawing pertain.

3.12.13 The Architect will check the Shop Drawings and make necessary notations and corrections . After completion of review, the Architect will take electronic copies for his record and return electronically to the Contractor. Vendors and Subcontractors shall supply to the Contractor for distribution, approved copies and prints as required for actual construction. Architect will retain one electronic copy of catalog cuts and brochures and return balance to Contractor.

3.12.14 Submittal of Shop Drawings, catalog cuts, samples, brochures, wiring diagrams, etc., is required where specified, and for all items and system listed in any preliminary material list.

3.12.15 Wiring diagrams shall be complete composite drawings specially prepared for this project, and shall show color coding, terminal markings and locations. Manufacturers' typical wiring diagrams will not be accepted unless

specified otherwise in the specifications.

3.12.16 Wherever manufacturer's printed specifications or instructions are to be referenced and made a part of this specification, the Contractor shall procure and distribute the necessary copies to all concerned parties, including the Architect, and provide a copy in Operation and Maintenance Brochures to be forwarded to the Owner.

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or ~~equipment~~. The Contractor inspected the site prior to award and accepted the areas for parking, storage and lay-down of materials and access to the site and the Owner will not be required to alter or interrupt any other operations at the Project site.

3.13.1 Subject to the Contractor's concurrence, the Owner shall have the privilege to use any and all portions of the project that have reached such a stage of completion as permit occupancy, provided that such occupancy does not hamper the Contractor or prevent his efficient completion of the Contract. Terms of partial occupancy shall not constitute an acceptance of the Contractor's work in whole or in part. Upon Substantial Completion of the Work, and execution of this Certificate by the Owner will constitute a partial acceptance of the Work by the Owner to the intent indicated on it. However, this shall not constitute an acceptance of the completion of the Contract, nor shall such occupancy release the Contractor from his obligation under the Contract.

§ 3.13.2 The Contractor shall take all precautions necessary to prevent loss or damage caused by vandalism, theft, burglary, pilferage or unexplained disappearance of property of the Owner, whether or not forming part of the Work located in the areas of the Project to which the Contractor has access. The Contractor shall provide for security of the Owner's property to prevent any such loss, damage or injury, except as may be directly caused by agents or employees of the Owner.

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§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project. For the Project Site, Contractor is responsible for vermin-control, grounds up-keep, sidewalk maintenance, lawn mowing, weed control and grounds cleaning. Directly prior to occupancy by the Owner, the Contractor shall clean all surfaces to be free of foreign matter, marks, stains, paint splatter, fingerprints, soil, dirt, and dust. All items required to be polished shall be cleaned accordingly. All clean-up operations shall be approved by the Architect.

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

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§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, the Owner's Project Manager, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

3.18.3 Nothing contained in this Section shall relieve Architect of any duty or Obligation owed to Owner.

§ 3.19 Log of Changes

The Contractor shall maintain a current log of all Request for Information (RFI's), Change Proposal Requests (CPRs), Change Orders and Construction Change Directives at the site of the Project and shall provide the Owner and Architect said logs monthly, not later than the tenth (10th) day of the following month.

§ 3.20 Failure to Perform Work

Contractor shall be liable to the Owner for all costs or damages that the Owner incurs as result of the Contractor's failure to perform the Work, or any part thereof, in accordance with Contract Documents. Contractor's failure to perform shall include, but not be limited to, the failure of its subcontractors and/or suppliers of any tier to perform. The Contractor's liability to the Owner shall include, but not be limited to (1) the increase costs of performance, including services of the Architect and other consultants, resulting from the Contractor's failure to comply with the Contract Documents; (2) costs of removal of defective or noncompliant work; (3) costs of corrective or warranty work; (4) liability to third parties caused by Contractor's failure to perform the Work or any part thereof; (5) re-procurement costs; (6) attorney fees and related costs, including costs incurred in enforcing Owner's rights under the Contract Documents; and (7) Liquidated and/or stipulated damages.

§ 3.21 Liens

§ 3.21.1 The term "lien" as used in this Section 3.21 and in Article 9 of these General Conditions and in Article 5 of the Agreement Between Owner and Contractor, AIA A101, refers to "claims" as provided in La. R.S. 38:2242, which authorizes "claimants" who perform work, labor, or provide materials or supplies for a public work to file "claims" with the governing authority. The term "lien" is used in the referenced sections instead of the word "claim" solely to avoid confusion with the "Claims" that may be filed by the Contractor and/or Owner pursuant to the Contract Documents, as provided in Article 15 of these General Conditions.

§ 3.21.2 In the event a Lien is filed by anyone in relation to the Work, the Owner shall have the right (1) to require the Contractor to furnish to the Owner a release of a Lien or claim that has been recorded by the person or entity filing the claim; (2) to require the Contractor to discharge the Lien by posting a bond with the Clerk of Court for the Parish in which the Project is located within five (5) calendar days of notice by the Owner to the Contractor; (3) obtain a Notice of Cancellation Certificate for each filed lien; and/or (4) to retain out of any payment due or thereafter to become due an amount sufficient to indemnify the Owner against any Lien or claim of a Lien, including bond premiums and attorney fees, and to apply the same in such manner as Owner deems necessary to satisfy such claims and Liens.

§ 3.21.3 In the event such Lien is not discharged, the Contractor at its sole cost and expense, including attorney's fees, shall hold harmless and defend the Owner of and from any and all claims, lawsuits, causes of actions and demands of any person or entity asserting or claiming any right as a result of any Lien or claim, recorded or unrecorded, against the Contract Funds or the Owner's property. In the event such Lien is not discharged, the Contractor shall be deemed in default and the Owner shall have the right to terminate the Contract for said default. The Owner shall also have the right, but not the obligation, to bond said Lien(s), and Contractor shall be responsible for all costs incurred as a result thereof, including but not limited to, bond premiums and attorney fees.

§ 3.21.4 Prior to the receipt of any partial payment, or of Final Payment, Contractor shall provide the Owner a partial release or a final release, as appropriate, of all Liens and claims of any persons furnishing labor and/or materials to the Work, Contractor shall not receive Final Payment before providing to the Owner satisfactory evidence (i.e. clear lien certificate) that there are no other Liens or claims whatsoever outstanding against the Work or Contract.

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

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

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

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§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may ~~order minor changes in the Work order, with the approval of the Owner's Project Manager, minor changes in the Work that do not involve changes in either the Contract Sum or the Contract Time~~ as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

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

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§ 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.~~ Work. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor. As applicable based upon the value of the Work, subcontractors shall be duly licensed in accordance with La. R.S. 37:2150, et seq. and local laws.

§ 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.~~ Work. 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.

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§ 5.2.1 .

Unless otherwise stated in the Contract Documents, the Contractor, ~~as soon as practicable after award of the Contract, shall notify the Owner and Architect shall,~~ prior to the Pre-Construction meeting (see § 13) furnish, in writing, to the Owner's Project Manager and Architect the contact information of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the

Owner or Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection. No payment shall be made to the Contractor until the requested information specified in this subsection is provided to the Architect and the Owner.

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The Contractor shall not contract with a proposed person or entity to whom ~~the Owner~~ the Owner, the Owner's Project Manager, or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection. The Contractor shall not be entitled to claims for additional time and/or an increase in the Contract Sum due to a problem with the performance or non-performance of a subcontractor. The Contractor is totally and solely responsible for any lost time or extra expense incurred due to a Subcontractor's and/or Material Supplier's failure to perform. Under no circumstances shall the Owner or Architect mitigate the Contractor's losses or reimburse the Contractor for losses caused by its Subcontractors and/or Material Suppliers.

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

The Contractor shall notify the Architect and the Owner's Project Manager at least five (5) calendar days prior to any change or substitution of any subcontractor or material supplier. Subcontractors and other persons or organizations selected by the Contractor and identified at the Pre-Construction Meeting and in connection with the Schedule of Values shall not be changed except with the written approval of both the Architect and the Owner's Project Manager

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§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised. The Contractor shall anticipate the Work of the Owner or other Contractors may delay, disrupt, or interfere with the Work and the progress schedule and Contractor shall do all cutting, fitting and patching of the Work required to make its several parts come together properly in a manner that will not endanger any Work of others by cutting, excavating or otherwise altering their Work without the written consent of the Owner.

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§ 6.1.5 The Owner may furnish materials or equipment to the Project site to be incorporated into the Work. For any Owner furnished equipment or materials to be incorporated into the Work, the Contractor shall perform such tasks as are necessary to coordinate and install the Owner furnished materials and/or equipment to make the Work functionally complete. If the Contractor contends that such Owner furnished materials or equipment constitutes an extra to the Work outside the requirements of the Contract Documents, the Contractor may request a change order for direct field costs incurred in installing such Owner furnished materials or equipment in accordance with the procedure set forth in Article 7.

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§ 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. A Request for Information (RFI) is not a change in the Contract Documents nor does it result in any changes to the Contract Sum or the Contract Time.

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

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§ 7.1.4 The Contractor shall submit the following information for the Contractor at the Pre-Construction Conference, prior to the commencement of any Work. The Contractor shall require of any Subcontractor desiring to submit a Change Order to submit similar information to the Contractor no later than fourteen (14) days prior to the submission of that Subcontractor's first Change Order. Such Subcontractor's information shall be provided to the Architect and the Owner's representative with any requested Change Order involving any request to change the Contract Sum. The information shall be provided in a written document and the Chief Financial Officer ("CFO") of the Contractor or Subcontractor (or another officer if no CFO) shall certify its accuracy and sign such certification.

- .1 Fixed job site overhead cost for the Contractor or Subcontractor, itemized with documentation to support daily rates. Fixed job site overhead costs shall be limited solely to the items listed in Section 7.1.7 hereinbelow;
- .2 Bond premiums with supporting information from the Contractor's or Subcontractor's carrier;
- .3 Insurance rates with supporting information from the Contractor's or Subcontractor's carrier;
- .4 Labor Burden by trade for the Contractor or Subcontractor, to include only:
 - .1 Applicable payroll taxes;
 - .2 Worker's Compensation;
 - .3 Unemployment Compensation, both federal and State;
 - .4 Social Security taxes.
- .5 Fringe Benefits, to include only.
 - .1 Sick Leave;
 - .2 Vacation;
 - .3 Health Insurance;
 - .4 Life Insurance;
 - .5 Union Dues;
 - .6 Apprentice training.
- .6 Internal Rate Charges for all significant company-owned equipment for the Contractor or Subcontractor.

Failure to submit this information at the Pre-Construction Meeting shall prohibit the Contractor from claiming these items on any Change Order.

§ 7.1.5 No order, oral statement, or direction of the Architect or the Owner shall be treated as a Change Order nor shall it entitle the Contractor to an adjustment of the Contract Sum or the Contract Time. Requests for Information (RFI) shall not constitute changes to the Contract Documents and do not change the Contract Sum or Contract Time.

§ 7.1.6 Unit prices shall be inclusive of all costs, including mark-up for overhead and profit, and shall be applied to units or measure as defined in the Contract Documents for each category of Work, if any.

§ 7.1.7 Fixed job site overhead costs, for all purposes under this Contract, shall be limited solely to the following actual costs. Said costs must be actually incurred to be included in the Project's fixed site overhead costs. If the Contractor or Subcontractor has no actual costs in a particular category, then no costs shall be allowed to the Contractor or Subcontractor in that category:

- .1 Hourly billable rate for the on-site Project Management Team;
- .2 Site office costs to include only, as applicable, (1) office trailer, (2) office equipment, (3) temporary phone, (4) reproduction, (5) postage/delivery, (6) project vehicles, and (7) fuel.
- .3 Site general costs to include only, as applicable, (1) temporary water, (2) temporary electrical, (3) interim clean-up, (4) project toilets, and (5) safety.

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§ 7.2.2 A Change Order must comply with the requirements of La. R.S 38:2212(M). A Change Order is not final nor binding upon the Owner and may not be included in an Application for Payment, until signed by the authorized representatives of the Owner, Contractor and Architect. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the

adjustment in the Contract Sum or the Contract Time. Any reservation of rights, stipulations, or other modifications made on the Change Order by the Contractor shall have no effect. A Change Order affecting the Contract Sum shall be based on the Cost of the Work, as set forth in section 7.2.3, and Overhead and Profit, as set forth in section 7.2.4, subject to approval of the Architect and the Owner.

§ 7.2.3 "Cost of the Work" for the purpose of Change Orders shall be costs actually required to be incurred in performance of the work and paid by the Contractor and Subcontractors. Such costs shall consist only of the following:

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

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

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

7.2.3.3 Cost of each necessary piece of machinery and equipment required to perform the Work, identifying each item and its individual cost, including taxes. Incidental small tools of a specific trade (i.e., shovels, saws, hammers, air compressors, etc.) and general use vehicles, such as pickup trucks even for moving items around the site, fuel for these general use vehicles, travel, lodging, and/or meals are not eligible and shall not be included.

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

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

§7.2.4 "Overhead and Profit" for the purpose of Change Order eligible costs for the Contractor and Subcontractor consists of (1) fixed job site overhead and home office fixed overhead, and (2) profits on the Cost of the Work, hereinafter called "Overhead and Profit," but such Overhead and Profit shall not exceed a combined total of 16% of the direct cost of the portion of the Work being added by the proposed Change Order. Credits to the Owner resulting from a change in the Work shall be the sum of those items above, except credit will not be required for Overhead and Profit. When a change results in both credits to the Owner and extras to the Contractor for related items, overhead and profit shall only be computed on the net extras cost to the Contractor.

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

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

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

7.2.5.3 When the Work is a combination of General Contractor Work and Subcontract Work; that portion of the direct cost that is General Contract Work shall be computed per Section 7.2.5.1 and that portion

of the direct cost that is Subcontract Work shall be computed per Section 7.2.5.2. Premiums for the General Contractor's bond may be included, but after the markup is added to the Cost of the Work. Premiums for the Subcontractor's Bond shall not be included.

7.2.5.4 Subcontract cost shall consist of the items in Section 7.2.3 above plus Overhead and Profit as defined in Section 7.2.4.

§ 7.2.6 The cost to the Owner resulting from a change in the Work shall be prepared and presented to the Architect and the Owner in a proposed Change Order, for their review and approval, as the sum of the "Cost of the Work" (as defined in section 7.2.3) and "Overhead and Profit" (as defined in section 7.2.4). Where a proposed Change Order results in only a credit to the Owner, credit will not be required for Overhead and Profit. Where a proposed Change Order results in both credits to the Owner and extra cost to the Contractor for related items, Overhead and Profit will only be computed on the net extra cost to the Contractor. The amount of the proposed Change Order so computed shall not be binding nor final until approved in writing by both the Architect and the Owner, as provided in section 7.2.2 above.

§ 7.2.7 Before a Change Order is prepared, the Contractor shall provide and deliver to the Architect and Owner's representative the following information concerning the Cost of the Work. The provision of said information is not subject to waiver, and shall be provided by the Contractor within a reasonable time after being instructed to prepare said Change Order:

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

.2 A detailed itemized list of labor, material and equipment costs for each Subcontractor's and/or Sub-Subcontractor's work including quantities and unit costs for each item of labor, material, and equipment.

§ 7.2.8 After a Change Order has been finalized and approved by the Owner, the Contractor and the Architect, in accordance with section 7.2.2, above (as reflected by all required signatures), no future requests for extensions of time or additional cost shall be considered for the change in the Work related in whole or in part to the events that required that Change Order. The Change Order represents the full and final amount of the change in the Contract Sum and/or the Contract Time due to the Contractor for all additional Work related to the Change Order. Contractor waives any further claims for additional costs or additional time, whether direct or indirect, for the change in the Work related to said Change Order.

.1 Nothing contained herein shall be construed as a waiver of any rights the Contractor may have under La. R.S. 38:2216(H).

.2 Contractor shall bring any such claims identified in La. R.S. 38:2216(H), to which it may be legally entitled, in accordance with the provisions of Article 15 herein below entitled "Claims and Disputes."

§ 7.2.9 The Contractor will be eligible for extended fixed job-site overhead for time delays only when all the requirements listed herein below in this section are met. In all cases the Contractor shall notify the Architect and Owner's representative in writing and shall make a Claim pursuant to the provisions of Article 15 herein. Reasonable proof shall be required by the Architect and Owner of each of the required elements listed below.

.1 Complete stoppage of the Work occurs;

.2 Such complete stoppage of the Work also causes an extension of critical path activities (defined as such on the approved Baseline Schedule required by Section 3.10.1);

.3 Such complete stoppage of the Work also results in an extension of the Contract Time;

.4 The Contractor is unable to mitigate financial damages through replacement work;

.5 The complete stoppage of the Work is not related in whole or in part to acts or omissions attributable to the Contractor, its subcontractors or suppliers or its representatives; and

.6 The complete stoppage of the Work is due solely to acts or omissions attributable to the Owner or its representatives.

§ 7.2.10 "Cost of the Work" whether incurred by the Contractor or a Subcontractor shall not include the following:

- .1 Salaries or other compensation of the Contractor's or Subcontractor's personnel at the Contractor's or Subcontractor's principal office and branch offices.
- .2 Any part of the Contractor's or Subcontractor's capital expense, including interest on the Contractor's or Subcontractor's capital employed for the work.
- .3 Overhead and general expenses of any kind or the cost of any item not specifically and expressly included in section 7.2.3 in Cost of the Work.
- .4 Cost of supervision not specifically required by the Change Order.
- .5 Cost of superintendent already on the Project, unless the Contract Time is being extended in the Change Order.

§ 7.2.11 When applicable, as provided in the Contract Documents, the cost to Owner for Change Orders shall be determined by quantities and unit prices. The quantity of any item shall be submitted by the Contractor and approved by the Architect and the Owner's representative. Unit prices shall cover costs of Material, Labor, Equipment, Overhead and Profit. When Unit prices (which include Overhead and Profit) are used as the basis for the added Cost of the Work to the Owner resulting from the Change Order, Overhead and Profit shall not be duplicated by adding it again under section 7.2.4.

§ 7.2.12 Any and all changes or adjustments in the Work that are the subject of a proposed Change Order shall be supported, in addition to the cost and schedule information required elsewhere in this Article 7, by detailed specifications, plans, and/or drawings that evidence the need for the change in the Work and the propriety of the proposed method to effectuate that change.

§ 7.2.13 Any and all changes or adjustments to the Contract Time requested or claimed by the Contractor as a result of a proposed Change Order shall require documentation and justification for the adjustment by a method analysis of the Contractor's most recent schedule in use prior to the change, which shows an extension in critical path activities. Changes that affect or concern activities containing float or slack time (i.e. not on the critical path) that can be accomplished within such float or slack time shall not result in an increase in the Contract Time.

§ 7.2.14 When applicable as provided by the Contract, the cost to Owner for Change Orders shall be determined by quantities and unit prices. The quantity of any item shall be as submitted by the Contractor and approved by the Architect. Unit prices shall cover cost of Material, Labor, Equipment, Overhead and Profit.

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§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order. A Construction Change Directive may be used by the Owner to document the amount of Liquidated Damages assessed or fees due to the Architect for additional inspections.

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- .3** Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or By estimated cost to which is applied the applicable fee herein provided. Adjustment shall be determined by the Contractor by listing the estimated cost of the following, where applicable.
 - a) Material costs (indicating identifications and unit prices) which shall include the costs of transportation.
 - b) Direct Labor Costs (indicating hours and rates by trades).
 - c) Increased or decreased insurance and bond premium costs payable by reason of the change.
 - d) Actual rental charges for rented equipment.
 - e) Payment required to labor organizations under existing labor agreements.

- f) A maximum of eight percent (8%) of the total of items (a) through (e) as compensation for all other costs and expenses including administrative overhead, profit and supervision.
- g) Work performed by Subcontractors, computed as outlined in items (a) through (f) plus a maximum of eight percent (8%) of the total of items (a) through (e) as compensation for all other costs and expenses including home office and on-site administrative overhead, profit and supervision of the General Contractor, where applicable.

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§ 8.1.1 TIME IS THE ESSENCE OF THIS CONTRACT. 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~~Agreement or such other date as may be stated in a Notice to Proceed.

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§ 8.1.5 The Contract Time shall not be changed by submission of a schedule that shows an early completion date unless specifically authorized by a final, approved Change Order; and Contractor is specifically prohibited from submitting a schedule that shows an early completion date, unless specifically authorized by a final, approved Change Order.

§ 8.1.6 For all purposes of counting time provided in these Contract documents, Time shall be counted on a calendar day basis. However, unless otherwise specified, where the due date for any action, submittal or response falls on a Saturday, Sunday, or legal holiday (as identified in Section 8.1.7), such action, submittal, or response shall be considered due on the next business day which is not a Saturday, Sunday or legal holiday. The preceding sentence shall not apply to the date of Substantial Completion.

§ 8.1.7 For purposes of Section 8.1.6, legal holidays shall include the following:

<u>New Year's Day</u>	<u>January 1</u>
<u>Martin Luther King Day</u>	
<u>Mardi Gras Day</u>	
<u>Good Friday</u>	
<u>Memorial Day</u>	<u>Last Monday in May</u>
<u>Independence Day</u>	<u>July 4</u>
<u>Labor Day</u>	<u>First Monday in September</u>
<u>Thanksgiving Day</u>	<u>Fourth Thursday in November</u>
<u>Christmas Eve</u>	<u>December 24</u>
<u>Christmas Day</u>	<u>December 25</u>
<u>New Year's Eve</u>	<u>December 31</u>

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. Substantial Completion of the Work must be achieved by the time stated in the Agreement between the Owner and Contractor, subject to such extensions that may be agreed to via Change Order. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

...

§ 8.2.4 The Contractor agrees to commence the Work not later than the date set forth in the Agreement or in the written Notice to Proceed issued by the Owner, and to achieve Substantial Completion of the Work within the time stated in the Contract Documents, and to achieve completion of the Punch List within the time stated in the Contract Documents. Further, the Contractor agrees to commence Onsite Construction Activities, as defined below in section 8.2.2.1, no later than fourteen (14) days after the date of commencement of the Work set forth in the Agreement or in the Notice to Proceed. The Contractor and Owner mutually agree that the Owner's operations will be negatively

impacted, and the Owner will sustain damage that will be impracticable and extremely difficult to quantify if Substantial Completion of the Project and Punch List completion are not achieved within the time set forth in the Contract Documents. The Contractor and the Contractor's Surety shall be liable for and shall pay to the Owner Liquidated Damages, which shall not be considered a penalty, in the amount stated in the Contract Documents as fixed, agreed upon and Liquidated Damages for each calendar day (Saturdays, Sundays, and legal holidays included) that Substantial Completion is delayed beyond the time stated in the Contract Documents. The Owner shall be entitled to collect any and all sums that are due the Owner as Liquidated Damages in any manner available, including but not limited to withholding the amounts due to the Contractor for Progress Payments or Final Payment, deducting the Liquidated Damages due by a Change Order or Construction Change Directive, or collecting the amounts due from the Contractor or the Contractor's Surety.

1. Onsite Construction Activities are those activities beyond mobilization which include actual and physical progress of the Work on the Project site. By way of example, typical Onsite Construction Activities include, but are not limited to, clearing and grubbing of the Project site, Project site fill and pile driving.
2. Should Contractor fail to commence Onsite Construction Activities timely, as set forth in this section 8.2.4, then any future claim Contractor may submit for an extension of the Contract Time shall be directly reduced by the number of days Contractor was late in the commencement of Onsite Construction Activities as defined herein.

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

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

...

§ 8.3.4 Time is the essence of the Contract. The Owner's operations will be impacted and delayed if the Project is not substantially complete within the time set forth in the Contract Documents. The Contractor and the Contractor's surety shall be liable for and shall pay to the Owner the sum stated in the Contract Documents as fixed, agreed and Liquidated damages for each consecutive calendar day (Saturday's, Sunday's and holidays included), of delay until the Work is substantially complete or, as applicable until the Work is finally complete. The Owner shall be paid the sum stated for Liquidated damages in the Contract Document. Such Liquidated damages shall be withheld by the Owner from the amounts due the Contractor for progress payments and deducted from the Contract Sum by a Construction Change Order or Construction Change Directive signed only by the Owner and the Architect.

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§ 9.2.1 To facilitate the review of Applications for Payment, the Schedule of Values shall be submitted for review and approval on AIA Documents G702 and G703, and shall include the following:

- .1 Contractor's cost for Contractor's fee (if applicable), bonds and insurance, mobilization, general conditions, etc. shall be listed as individual line items.

- .2 Contractor's costs for various construction items shall be detailed. For example, concrete work shall be subdivided into footings, grade beams, floor slabs, paving, etc.
- .3 On major subcontracts, such as mechanical, electrical and plumbing, the schedule shall indicate line items and amounts in detail (for example: underground, major equipment, fixtures, installation fixtures, start-up, etc.)
- .4 Costs for subcontract work shall be listed without any additional mark-up of Contractor's costs for overhead, profit or supervision.
- .5 If payment for stored materials is requested prior to installation, then material and labor shall be listed as separate line items.
- .6 Contractor shall provide a report of actual versus project reimbursable expenses (general conditions), updated monthly.
- .7 The Schedule of Values approved by the Architect and accepted by the Owner shall be used as a basis for reviewing the Contractor's Applications for Payment.
- .8 A clear designation of any of the Work to be performed by the Contractor with its own employees.
- .9 A list of names and business domiciles of all Subcontractors, manufacturers, suppliers or other persons or organizations (including those who are to furnish materials or equipment fabricated for a special design) proposed for the principal portions of the Work.

§ 9.2.2 The total of all items shall equal the total Contract Sum. For a multiple building site, multiple sites or multiple locations Contract, the Schedule of Values will be allocated for each separate building, site or location.

§ 9.2.3 The Contractor shall list and identify all Subcontractors, Sub-subcontractors and suppliers with their contract amount in the Schedule of Values.

§ 9.3.1 At least ten days before the date established for each progress payment,

Monthly, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if values required under ~~Section 9.2, Section 9.2,~~ for completed portions of the Work. The application shall be ~~notarized, if required,~~ notarized and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents. See section 9.3.1.3. Applications for Payment shall be submitted no later than the fifth (5th) day of each month for the value of labor and materials incorporated into the work and of materials, suitably stored at the site, as of the last day of the preceding month, less normal retainage, as set forth in Section 9.3.1.3. Offsite storage of materials may be allowed. See Section 9.3.2

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9.3.1.3 Applications for Payment shall include a current Construction Schedule. This schedule must include the name and duration of completed tasks, name and duration of future tasks, labels on which are critical tasks, construction milestones, and actual and projected dates of all milestones, completed tasks, and future tasks.

§ 9.3.1.4 The normal retainage shall not be due the Contractor until after all of the following have occurred: (1) Substantial Completion has been achieved; (2) the Architect has prepared and the Owner has approved and accepted a Certificate of Substantial Completion, including an attached Punch List meeting the requirements of Section 9.8.4 and 9.8.5; and (3) the Contractor has submitted an Application for Payment for the retainage, (4) the Contractor has provided the Owner with a fully completed, executed and notarized Contractor's Conditional Waiver of Lien for Current Progress Payment and Unconditional Waiver of Lien for Prior Progress Payments, in the form attached to the Agreement Between the Owner and Contractor, AIA Document A101; (5) the forty-five (45) day lien period in La. R.S. 38:2242 has expired; and (6) the Contractor has provided the Owner and the Architect with an original, certified

clear lien and privilege certificate issued by the Clerk of Court for the Parish in which the Project is located. If there are insufficient funds remaining in the Contract Sum to both pay the normal retainage and cover the value assigned to the Punch List (as set forth in Section 9.8.5), then the Owner shall withhold payment of the normal retainage to the extent necessary to cover the shortfall. If the value of the Punch List (as set forth in Section 9.8.5) exceeds the funds remaining in the Contract Sum, including the normal retainage, Contractor shall not be entitled to the payment of any normal retainage. Instead, Contractor and/or its Surety shall be liable for and shall pay the shortfall to the Owner.

§ 9.3.1.5 Work performed and materials supplied under a Change Order may be included for payment only after the Change Order has been approved in writing by the Owner and all other appropriate parties, as more specifically set forth in section 7.2.1 herein above.

9.3.2.1 Payments made on any materials or equipment not incorporated into the Work, whether on site or not, will be paid at invoice amount (invoice from vendor who provided the materials to the person or firm requesting payment on a stored basis) plus any direct insurance and transportation cost attributed to said materials. Overhead and profit markups on stored materials are not acceptable.

9.3.2.2 Certificates of Insurance shall be required of all premises proposed for use in storing materials for which payment is being required. Owner shall be listed as an additional insured on said policies, and all Certificates shall be submitted to the Architect for approval prior to a request for payment, including stored materials covered by same.

§ 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. Substantial Completion, and delivery of possession to Owner. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.3.4 Each Application for Payment for a Progress Payment may upon request of Owner be accompanied by a fully completed, executed and notarized Contractor's Conditional Waiver of Lien for Current Progress Payment and Unconditional Waiver of Lien for Prior Progress Payments, in the form attached to the Agreement Between the Owner and Contractor, AIA Document A101. The Application for Final Payment shall be accompanied by a fully completed, executed and notarized Contractor's Unconditional Waiver of Lien Upon Final Payment, in the form attached to the Agreement Between the Owner and Contractor, AIA Document A101. Payment Applications which omit these Waivers of Liens shall not be paid.

§ 9.3.5 The Contractor further expressly undertakes to defend the 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 job site and any improvements thereon, any portion of the property of the Owner, or any payments due the Contractor (referred to collectively as "liens" in this Section 9.3) by those providing labor, material or equipment on behalf of Contractor. The Contractor hereby agrees to defend, indemnify and save Owner harmless against any such liens or claims and agrees to pay any judgment or lien resulting from any such actions, lawsuits or proceedings and all attorney fees.

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- .6 reasonable evidence, including a Construction Schedule, that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages-Liquidated Damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.
- .8 Contractor's requests for discontinuance of retainage or final payment shall be accompanied by a properly executed copy of "Consent of Surety" form. Contractor shall cooperate with Architect, Owner and Surety in establishing the correctness of this requests. Such requests shall be made in ample time as all necessary approvals must be secured before requests can be honored..9 if the Project is behind schedule, failure to submit a written plan indicating action by the Contractor to regain the time schedule for completion of the Work within Contract Time;
- .10 improperly completed or inadequately documented/supported Application for Payment. The omission of any required documents from the Application for Payment, including but not limited to lien waivers,

all documents required herein, all documents required in the Division 01 Specifications of the Contract Documents, and all documents required elsewhere such as an approved Construction Schedule or lack of approved Schedule of Values in the Contract Documents, shall result in its rejection; or

- .11 rejection of any part of the Work by any governmental authority having jurisdiction over the Project.

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After the Architect has issued a Certificate for Payment per subparagraph 9.4.1, the Owner will make payment to the contractor on or about the 10th day of each month. Payments shall reflect ninety percent (90%) of the value for projects under \$500,000 or ninety-five (95%) for projects over \$500,000, based on the contract prices, of labor and materials incorporated in the Work and of materials suitably stored in accordance with subparagraph 9.3.2 up to the second to last day of the preceding month, as estimated by the Architect, less the aggregate of previous payments.

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

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner. La. R.S. 9:2784(A) and (C) require a Contractor or Subcontractor to make payment due to each subcontractor and supplier within fourteen (14) consecutive days of receipt of payment from the Owner. If not paid, a penalty in the amount of one half of 1% per day is due, up to a maximum of fifteen percent (15%) from the expiration date until paid. The Contractor or Subcontractor, whichever is applicable, is solely responsible for the payment of any penalty.

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~~§ 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.~~

§ 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. The Architect shall determine if the Project is Substantially Complete in accordance with this Article 9.8. In addition to the requirements of the first sentence of this Article 9.8.1, the following conditions must also be satisfied before the Work will be considered Substantially Complete, unless otherwise agreed to by the Owner:

- .1 Where roofing work is part of the Contract, the Owner must receive the executed Roofing Contractor's and Roofing Manufacturer's guarantees;
- .2 All required occupancy permits must have been issued and copies delivered to the Owner;
- .3 All Project systems included in the Work must be operational as designed;
- .4 All operations and maintenance data specified has been submitted and approved, including the provision of draft as-built drawings for training purposes;
- .5 The Owner's personnel must have completed any required training in the Project's operations systems;
- .6 All finishes required by the Contract Documents must be in place;
- .7 The only remaining work must be minor in nature so that the Owner can occupy or utilize the Work for its intended use; the building/construction and the Contractor's completion of that minor remaining work will not interfere with nor hamper the Owner's normal business operations;
- .8 The Contractor must certify in writing that all remaining Work will be completed within forty-five (45) consecutive calendar days, unless the Owner consents to a different time, following the date of Substantial Completion. Any remaining Work required to be performed after the date of Substantial Completion at a location that is operating and open shall be done in a manner and during times that do not interfere with operations, at no additional cost to Owner. Owner shall have the right to direct Contractor to perform said Work, at no additional cost during non-operating hours, including nights and weekends.
- .9 All warranties to be effective as of the date of substantial completion fully signed and dated.

...

Upon Substantial Completion of the Work and on the recommendations of the Architect, the Owner shall accept the Work in accordance with the Certificate of Substantial Completion and provisions as amended of Louisiana R.S. 9:4802.1 (as to private work). The Owner shall sign the Certificate of Substantial Completion and Contractor shall cause same to be recorded in the mortgage records of the Parish of Terrebonne.

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Neither the final payment, nor any part of the retainage shall become due until the Contractor shall deliver to the Owner, a certificate by the Clerk of Court of the Parish of Terrebonne that the Substantial Completion Certificate has been recorded and more than forty-five (45) days has elapsed since said recording indicating no liens have been recorded affecting this project, all punch list work has been completed and accepted, and all affidavits, consents, releases and waivers specified in subparagraph 9.10.2 have been provided.

...

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents. The Punch List of exceptions prepared by the Architect shall itemize additional Work remaining to be done by the Contractor, and the dollar value related thereto. The Cost of these items shall be prepared in the same format as the Schedule of Values. The monetary value assigned to this Punch List will be 125% of the sum of the cost estimate for each particular item of required work, and will be estimated by the Architect based on the mobilization, labor, material and equipment costs of correcting the item. The value assigned to the Punch List shall be retained from the monies owed the Contractor, above and beyond the normal retainage. No funds assigned for the Punch List value shall be due to the Contractor before the Punch List items are completed and accepted by the Architect and the Owner. If the dollar value of the Punch List exceeds the amount of funds, less the retainage amount, in the remaining balance of the Contract, then the Project shall not be accepted as Substantially Complete. If funds remaining in the Contract are less than that required to complete the Punch List Work, then the Contractor or its Surety shall pay the difference.

§ 9.8.6 The Contractor shall complete the Punch List items within forty-five (45) consecutive calendar days from the date of Substantial Completion. The Owner may, as its option, consent to a different time, but such consent shall be reflected in writing. If the Contractor fails to complete all Punch List items within this forty-five-day period, through no fault of the Owner or the Architect, the Contractor shall be assessed Liquidated Damages in the amount set forth in the Agreement between the Owner and Contractor (AIA Document A101), for each additional day beyond that forty-five (45) day period that the Punch List remains incomplete. Additionally, if the Contractor fails to complete all Punch List items within this forty-five-day period, through no fault of the Owner or the Architect, then the Owner may hold the Contractor in default. If the Owner finds the Contractor is in default, the Surety shall be notified. If within forty-five (45) days after notification of the Surety by the Owner, the Surety has not completed the Punch List, through no fault of the Architect or Owner, the Owner may, at his option, contract with an outside party to have the balance of the Work completed and pay for such Work with the unpaid funds remaining in the Contract Sum. Finding the Contractor in default shall constitute a reason for disqualification of the Contractor from bidding on future Owner contracts. If the Surety fails to complete the Punch List within the stipulated time period, the Owner may choose to not accept bonds submitted from the Surety in the future.

§ 9.8.7 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. After such acceptance, and consent of surety, the Contractor may submit to the Owner a properly completed and supported Application for Payment seeking payment of completed Work, less the value assigned to the Punch List items, as set forth in and limited by Section 9.8.5 above. Such Application for Payment shall not request payment for Work that is incomplete and/or not in accordance with the requirements of the Contract Documents.

§ 9.8.8 After the Owner's receipt and approval of a fully executed Certificate of Substantial Completion and attached Punch List, the Owner may issue a Notice by Owner of Acceptance of Work. The Contractor shall record the Certificate of Substantial Completion or Notice by Owner of Acceptance of Work with the Clerk of Court for the

Parish in which the Project is located, and shall provide written evidence of recordation to the Architect and the Owner's representative . If the Notice of Acceptance has not been recorded within seven (7) days after issuance, the Owner may record the Notice of Acceptance at the Contractor's expense.

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§ 9.9.1.1 Occupancy by the Owner shall not be construed by the Contractor as being an acceptance of that part of the Project to be occupied.

§ 9.9.1.2 Occupancy by the Owner shall not be deemed to constitute a waiver of existing claims on behalf of the Owner or the Contractor against each other.

§ 9.9.1.3 If the Project consists of more than one building, and one of the buildings is to be occupied, the Owner, prior to occupancy of that building, shall secure permanent property insurance on the building to be occupied, as well as any necessary permits that may be required for occupancy and use.

§ 9.9.1.4 Use and occupancy by the Owner prior to Project acceptance shall not relieve the Contractor of the responsibility to maintain all insurance and bonds required of the Contractor under the Contract Documents until the entire Project is completed and accepted by the Owner.

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§ 9.10.2.1 In addition to the items listed in Section 9.10.2, the Contractor shall deliver the following items to the Architect within forty-five (45) days following the date of Substantial Completion. Neither final payment nor any remaining retained percentage shall become due until the Contractor submits all of the required documents and information.

1. All close-out submittals specified in the Specifications.
2. All project record documents specified in the Specifications.
3. All approved submittals.
4. All approved Shop Drawings.
5. All final as-built Drawings, in both paper and electronic (pdf) format.
6. All operations and maintenance data specified in the Specifications.
7. All warranties as required on specific products or portions of the Work, including subcontractor warranty letters.
8. All spare parts, overages, and maintenance materials specified in the Specifications.
9. Certificates of Occupancy from authorities having jurisdiction.
10. Copies of all inspection tags from authorities having jurisdiction.
11. Executed Certificates of Substantial Completion.
12. A fully completed, executed and notarized Contractor's Unconditional Waiver of Lien Upon Final Payment, in the form approved by the Owner.
13. Clear lien certificate from the Clerk of Court.

§ 9.10.2.2 Upon receipt by the Architect of all Project close-out documents and a recommendation by the Architect of acceptance of Final Completion, a close-out meeting will be scheduled by the Architect, to include the Architect, the Owner and the Contractor for the review and acceptance of all of the required items identified in this Section 9.10.2. If all items are complete and accepted by the Owner, the Owner will then authorize the issuance of Final Payment.

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- .5 any Work found not to be done in accordance with the Contract Documents during the one-year Correction period;
- .6 Liquidated damages; or
- .7 latent defects.

...

§ 9.11 Liquidated Damages

As more specifically set forth in AIA Document A101, Agreement Between Owner and Contractor, as modified by the Owner, the Contractor's failure to achieve Substantial Completion within the Contract Time, as set forth in the Contract Documents shall result in the imposition of Liquidated Damages upon the Contractor. As further set forth in the Agreement, and in Sections 8.2.4 and 9.8.6 above, it is mutually agreed by the Contractor and Owner that the Owner's operations will be negatively impacted and the Owner will sustain damage that will be impracticable and extremely difficult to quantify if Substantial Completion of the Project is not achieved within the time set forth in the Agreement. The Contractor and the Contractor's Surety shall be liable for and shall pay to the Owner Liquidated Damages, which shall not be considered a penalty, in the amount stated in the Contract Documents as fixed, agreed upon and Liquidated Damages for each calendar day (Saturdays, Sundays, and legal holidays included) that Substantial Completion is delayed beyond the time stated in the Agreement. The Owner shall be entitled to collect any and all sums that are due the Owner as Liquidated Damages in any manner available, including but not limited to withholding the amounts due to the Contractor for Progress Payments or Final Payment, deducting the Liquidated Damages due by a Change Order or Construction Change Directive, or collecting the amounts due from the Contractor or the Contractor's Surety. The Contractor and the Contractor's Surety hereby agree and will be held liable for any Liquidated Damages imposed in accordance with these Contract Documents.

...

- .4 the indoor air quality of buildings where the Owner's students, teachers, employees and visitors are present;
- .5 the exhaust systems and existing fresh air intake devices to prevent dust or fume caused by the Work to enter such systems; and
- .6 the Contractor expressly agrees that it is exclusively responsible for compliance with the Occupational Safety and Health Act ("OSHA") and State and local regulations for the construction in that it is the "employer" within the meaning of those regulations. It is the expressed intent of the parties that the Contractor, and not the Architect, the Owner, or the Owner's Project Manager, is in charge of the Work. Any provision in the Contract Documents in conflict with this paragraph shall be null and void.

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§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards. Contractor shall provide for the marking of all underground utilities prior to any digging, excavation or other disturbances of earth and provide the Louisiana One Call reference number to the Architect and the Owner's representative. The Contractor expressly agrees that it is exclusively responsible for compliance with the Occupational Safety and Health Act (OSHA) and state and local regulations for the construction in that it is the "employer" within the meaning of those regulations. It is the expressed intent of the parties that the Contractor, not the Architect nor the Owner, are in charge of the Work. Any provision in the Contract's Documents in conflict with this paragraph shall be null and void.

...

§ 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. Contractor shall immediately make an oral report to the Architect and the Owner's representative and promptly provide a written report to the Architect and the Owner's representative, about all accidents arising out of or in connection with the Work that cause death, personal injury, interrupt utility services or property damage.

...

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 24-three (3) days after discovery. The notice shall

provide sufficient detail to enable the other party to investigate the matter. This notice does not replace nor supplant the shorter notice required by Section 10.2.6 above.

...

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the ~~Owner and Architect of the condition.~~ Owner, the Owner's Project Manager and Architect of the condition. Microbials are not considered to be hazardous for the purposes of this Section; however, the Contractor should notify the Owner's representative and Architect of the presence of microbials on building components, in writing, in any affected area of a Project. The Owner is responsible to assess any area of a Project where microbials are observed. The Owner will provide for remediation of microbials in any affected area of a Project. The Owner will advise the Architect and Contractor upon completion of the remediation of any affected area due to the presence of microbials in an area. There are no clear standards set regarding exposure levels for microbials since microbials are generally present everywhere. If the presence of microbials in an area of a Project does not affect the remaining areas of a Project, the Contractor shall continue with work in all unaffected areas of a Project.

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§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby ~~incurred.~~ incurred except when prior notice is required regarding mold or handling removal of materials with mold.

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Owner, Owner's Project Manager, and Architect shall be named as additional insured on these policies.

...

11.1.5 The Contractor's minimum limits of liability which he shall also require from his subcontractors unless he shall insure their operations under his policy, are as follows: (Contractor shall include Owner and Architect as additional insured on all policies carried for this project).). All policies shall be written on a primary, non-contributory bases without regard to any other valid insurance coverage. For any claims related to the job to which this document applies, the Contractor's insurance coverage shall be primary insurance as respects to the Owner, and their employees, officers, directors, and volunteers (collectively "OWNER"). Any insurance or self-insurance maintained by the Owner shall be excess of the Contractor's insurance and the Owner's coverage shall not contribute with it.

COMPREHENSIVE GENERAL LIABILITY

A. Limit of Liability

<u>Personal injury - per occurrence</u>	<u>\$1,000,000</u>
<u>General policy aggregate (If applicable)</u>	<u>\$2,000,000</u>
<u>Premises / Operations</u>	
<u>Per occurrence (BI & PD)</u>	<u>\$1,000,000</u>
<u>Per aggregate (BI & PD)</u>	<u>\$1,000,000</u>
<u>Products / Completed Operations</u>	
<u>Per occurrence (BI & PD)</u>	<u>\$1,000,000</u>
<u>Per aggregate (BI & PD)</u>	<u>\$1,000,000</u>

B. Endorsements:

1. Explosion, collapse and underground (if applicable)
2. Contractual
3. Independent contractors
4. Medical payments - \$5,000 limit per person
5. Board from CGL Endorsement
6. South Central Louisiana Human Services Authority named as Additional Insured
7. Waiver of Subrogation in favor of South Central Louisiana Human Services Authority
8. Pollution exclusion removed for Sudden & Accidental (Fuel, oil, Lube, and chemical vendors)
9. 30-day Notice of Cancellation
10. CG 20 10 "Ongoing" Operations
11. CG 20 37 "Completed Operations

STANDARD WORKER’S COMPENSATION

- A. Limits of Liability:
Coverage A - Statutory requirements
Coverage B - \$1,000,000 employers’ liability per accident/per disease/per employee.
- B. Endorsements:
1. USL&H
 2. Waiver of Subrogation in favor of South Central Louisiana Human Services Authority (as required by contract)
 3. Alternate employer’s or master servant endorsement
 2. Maritime (If Applicable) - \$1,000,000 limits
 3. 30-day Notice of Cancellation

AUTOMOBILE LIABILITY

- A. Limits of Liability:
- | | |
|-------------------------------------|---------------------|
| <u>Bodily Injury - Per Person</u> | <u>\$1,000,000</u> |
| <u>Bodily Injury - Per Accident</u> | <u>\$1,000,000.</u> |
| <u>Property Damage</u> | <u>\$1,000,000</u> |
| <u>BI and PD combined</u> | <u>\$1,000,000.</u> |
- B. Endorsements:
1. Hired automobile liability
 2. Non-ownership liability
 3. South Central Louisiana Human Services Authority named as Additional Insured
 4. Waiver of Subrogation in favor of South Central Louisiana Human Services Authority
 5. 30-day Notice of Cancellation

EXCESS LIABILITY

- A. Umbrella form
1. Limit of liability - \$1,000,000 each occurrence

OTHER REQUIREMENTS

- A. Suitable coverages may be required if special conditions or exposure exist. (I.e. Marine coverages, Property exposures, etc.)
- B. Contractor shall furnish the Owner with certificates of insurance, evidencing required amendatory endorsements or copies of the applicable policy language effecting coverage required by this clause. All certificates and endorsements are to be received and approved by the Owner including renewal evidence prior to expiration. Failure to provide and maintain the required insurance coverage throughout the term of the Agreement shall be a material breach of the Agreement, and shall entitle Owner to all remedies provided for in

the Agreement, any Amendment(s) thereto, or by operation of law.

C. All policies are required to be on occurrence form basis, except those lines generally written ONLY on claims-made forms (i.e. Professional, Errors & Omissions, etc.

11.1.6 The Contractors are responsible for any damage as a result of the Work, operations, acts, omissions, neglect, equipment failure, or other causes arising out of their contract, including such damage as may be caused by or resulting from water. Insurance for hazards, other than protected by insurance specified, is at the Contractor's option.

11.1.7 ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers with an A.M. BEST'S RATING OF NO LESS THAN A:VI. This requirement will be waived for workers' compensation coverage only for those contractors whose workers' compensation coverage is placed with companies who participate in the State of Louisiana Workers' Assigned Risk Pool or Louisiana Workers' Compensation Corporation.

11.1.8 PROPERTY INSURANCE

The Contractor shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. This insurance shall include the interests of the Owner, Architect, Contractor, Subcontractor, and Sub-Subcontractor in the Work and shall insure against the perils of fire and extended coverage and shall include "all-risk" insurance for physical loss or damage, including, without duplication of coverage, theft, vandalism, and malicious mischief. Coverage shall include ten percent (10%) of completed value to cover the cost of Architect's fees, should the project have to be rebuilt as a result of a covered peril. The policy shall either name the Owner as a co-insured or contain an endorsement providing that the insurer shall have no right to be subrogated to claims against the Owner.

11.1.9 In the event of loss, deductibles if any, shall be paid by the Contractor.

11.1.10 The Contractor shall provide its own insurance coverage for portions of the work stored off-site after written approval of the Owner at the value established in the approval and also portions of the Work in transit.

11.1.11 PERFORMANCE BOND AND PAYMENT BOND

The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. The cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100 percent of the Contract Sum.

The Contractor shall maintain in effect until final acceptance of the Work, an Owner's Protective Liability Policy in which the Owner shall be named as insured and in which the Owner's Program Manger and the Architect shall be named as additional insured, protecting the insured against liability arising from operations under this Contract, including any liability arising from the construction observations of the Owner, or his representative, or Architect. This policy shall not cover liability arising from errors in drawings and specifications prepared by the Architect.

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

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

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect or the Owner's Project Manager may request to see such Work and it shall be

uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

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

...

§ 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. (see, La. R.S. 38:2189).

§ 12.2.6 The Owner shall have the right to operate non-conforming equipment until defects are corrected and warranties are met; and the Owner shall have the right to operate rejected equipment until replaced, without charge for depreciation, use, or wear

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§ 13.1 Governing Law and Jurisdiction

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. ~~If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.~~ Exclusive jurisdiction shall be the 32nd Judicial District Court, Terrebonne Parish, State of Louisiana.

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Payments due and unpaid under the Contract Documents shall bear ~~interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.~~ no interest.

§ 13.6 Preconstruction, Progress and Coordination Meetings

§ 13.6.1 A Pre-Construction meeting shall be held prior to the Notice to Proceed. The following shall be in attendance: Owner, Architect and its Consultants, Contractor and Superintendent, major Subcontractors and representatives of separate Contractors, when applicable. The Contractor shall submit to the Architect and the Owner's representative prior to or at the preconstruction meeting the following: (1) list of major Subcontractors and their phone numbers, (2) a list of Subcontractors' Superintendent and Project Manager with 24 hour phone numbers, (3) (CPM) Construction Progress Schedule both in the written and electronic formats (both native and pdf) submittal schedule, and (4) Schedule of Values.

§ 13.6.2 Progress and coordination meetings will be held monthly or more often as designated by the Owner or Architect on site or as changed in writing by the Owner's representative or Architect. The Contractor shall distribute minutes of each meeting to all participants within seven (7) days of each meeting. The following are expected to attend: The Contractor represented by its Project Manager or principal, the Contractor's Project Superintendent, the Sub-contractors and material suppliers requested by the Owner's representative or Architect

...

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit earned up to the time of termination and no other damages on Work not executed, and costs incurred by reason of such termination. The Contractor shall not be entitled nor allowed consequential damages or loss of profit or overhead or attorney fees for any portion of the Work of the Contract that has not been performed.

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§ 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. Termination by the Owner shall not suspend assessment of Liquidated Damages against the Contractor or Surety.

...

14.2.5 If an agreed sum of Liquidated Damages has been established, termination by the Owner under this Article shall not relieve the Contractor of his obligations under the Liquidated Damages provisions and the Contractor shall be liable to the Owner for these per diem charges.

...

The Owner may, at any time, terminate the Contract in whole or in part for the Owner's convenience and without cause. Termination by the Owner under this Paragraph 14.4 shall be by a notice of termination delivered to the Contractor, specifying the extent of termination and the effective date.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall Upon receipt of a notice of termination, the Contractor shall immediately, in accordance with instructions from the Owner, proceed with performance of the following duties regardless of delay in determining or adjusting amounts due under this Paragraph 14.4:

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

1. cease operations as specified in the notice;

2. place no further orders and enter into no further subcontracts for materials, labor, services or facilities, except as necessary to complete portions of the Contract not terminated;

~~2. take actions necessary, or that the Owner may direct;~~ 3. terminate all subcontracts and orders to the extent they relate to the Work terminated;

4. proceed to complete the performance of Work not terminated;

5. take action that may be 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.terminated work.~~

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

The amount to be paid to the Contractor by the Owner because of the termination shall consist of:

1. for Work performed and for Work in process on or off the site to the extent completed on the terminated portion of the Contract before the effective date, the cost of that Work and the expense of settling and paying termination costs under the terminated subcontracts and purchase orders that are properly chargeable to the terminated portion of the Contract;
2. the reasonable costs of settlement of the Work terminated, including accounting, legal, clerical and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data; additional costs of termination and cancellation charges and settlement of subcontracts not already allowed under Clause 14.4.3.1; and storage, transportation and other costs incurred which are reasonably necessary for the preservation, protection or disposition of the terminated Work; and
3. a 5% profit on the Work contracted for.

14.4.4 Allowance shall be made for previous payments to the Contractor for the terminated portion of the Work, and Claims settled or pending under ARTICLE 4 between the Owner and Contractor, and for the value of materials, supplies, equipment and other items that are part of the cost of the Work to be disposed of by the Contractor.

14.4.5 The term "cost" as used in this Paragraph 14.4 shall be listed in Subparagraph 7.3.6

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

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§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary. Adverse weather conditions on a scheduled work day shall only result in claims for additional time, and not constitute grounds for adjustment to the Contract Sum. No monetary damages for weather-related days shall be allowed or granted. A claim for an increase in the Contract Time for adverse weather will only be considered when said weather affected critical path activities, as identified on the approved baseline schedule.

...

Average rainfall for the area, according to the United States Department of Agriculture, Houma Substation records for the preceding five (5) years shall not be a cause for an extension of the Contract Time. Any rainfall above the average that hinders normal work on the Project Site which the Architect determines may justify a delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine. The following are considered reasonably anticipated average days of adverse weather on a monthly basis:

January	10 days	July	17 days
February	9 days	August	12 days
March	7 days	September	10 days
April	6 days	October	7 days
May	7 days	November	8 days
June	11 days	December	11 days

§ 15.1.6.3 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. Contractor's first Claim for Additional Time due to adverse weather may be submitted only after the total adverse weather days exceed the allowable days as stated in Section 15.1.6.2 above. The claim must be submitted within seven (7) calendar days of the end of the month in which the cumulative total is first exceeded and is fully document for the cumulative total of adverse weather delays resulting in the total exceeded allowed days. Thereafter, Contractor shall submit any such claim for additional time due to adverse weather monthly within seven

(7) calendar days of the end of the month. Adverse weather conditions on a scheduled work day shall only result in claims for additional time and an adjustment in the Contract Time only. Adverse weather delay days will be granted for weekends or holidays, that have advance written work notifications from Contractor to Architect or Owner. A claim for an increase in the Contract Time will only be considered for critical path activities, as identified on approved baseline schedule.

§ 15.1.6.4 If unsuitable ground conditions are the result of Contractor's failure to properly grade and/or maintain the grounds, no additional time shall be granted.

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

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§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded. Notwithstanding anything to the contrary contained in any of the Construction Documents, the Owner shall not be required to submit any claims, dispute, or other matter in question between it and any other party for arbitration, nor shall the Owner be subject to arbitration over its objection, whether said arbitration procedure is commenced directly against the Owner by any claimant or indirectly by joinder or third-party action.

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

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

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

§ 15.4.4 Consolidation or Joinder

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

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

ARTICLE 16 EQUAL OPPORTUNITY

§ 16.1 Contractor and all Sub-contractors shall not discriminate against any employee or applicant for employment because of race, color, sex or national origin. The Contractor shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not limited to the following; employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the policies of non-discrimination.

§ 16.2 The Contract and all Sub-contractors shall in all solicitations or advertisement for employees place by them or on their behalf state that they qualified applicants will receive consideration for employment without regard to race, religion, sex or national origin.

ARTICLE 17 VERIFICATION OF EMPLOYEES INVOLVED IN PUBLIC CONTRACT WORK

The Contractor shall comply with the provisions of La. R.S. 38:2212.10(C) and continue during the term of this contract to utilize a status verification system to verify the legal status of all new employees in the State of Louisiana or as otherwise required under the statute and to require all subcontractors to verify compliance with La. R.S. 38:2212.10(C).

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

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Shelley Olivier, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 09:47:12 ET on 03/15/2024 under Order No. 4104245078 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ – 2017, General Conditions of the Contract for Construction, other than those additions and deletions shown in the associated Additions and Deletions Report.



(Signed)

Architect

(Title)

3/15/24

(Dated)



AIA Document A101® – 2017

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

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

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

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

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

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

Sample

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

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

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

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

ARTICLE 2 THE WORK OF THIS CONTRACT

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

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

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

(Check one of the following boxes.)

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.
- Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

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

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

§ 3.3 Substantial Completion

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

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

- Not later than () calendar days from the date of commencement of the Work.

By the following date:

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

Portion of Work	Substantial Completion Date
-----------------	-----------------------------

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

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

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

Item	Price
------	-------

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement. (Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance
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§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price
------	-------

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

Item	Units and Limitations	Price per Unit (\$0.00)
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§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

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

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

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

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

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than () days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

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

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

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

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

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

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

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

§ 5.1.7 Retainage

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

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

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

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

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

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

§ 5.2 Final Payment

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

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

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

§ 5.3 Interest

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

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

_____ % _____

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

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

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

§ 6.2 Binding Dispute Resolution

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

(Check the appropriate box.)

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

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

ARTICLE 7 TERMINATION OR SUSPENSION

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

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

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

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

ARTICLE 8 MISCELLANEOUS PROVISIONS

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

§ 8.2 The Owner’s representative:

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

§ 8.3 The Contractor’s representative:

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

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

§ 8.5 Insurance and Bonds

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

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

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

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

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

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

.5 Drawings

Number	Title	Date
--------	-------	------

.6 Specifications

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

.7 Addenda, if any:

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

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

.8 Other Exhibits:

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

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

The Sustainability Plan:

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

Supplementary and other Conditions of the Contract:

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

.9 Other documents, if any, listed below:

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

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

OWNER (Signature)

CONTRACTOR (Signature)

(Printed name and title)

(Printed name and title)



AIA® Document A312® – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONSTRUCTION CONTRACT

Date:

Amount:

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: None See Section 18

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name
and Title:

(Any additional signatures appear on the last page of this Payment Bond.)

Signature: _____

Name
and Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:**OWNER'S REPRESENTATIVE:**

(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1** have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2** have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

Sample

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

SURETY

Company:

(Corporate Seal)

Company:

(Corporate Seal)

Signature: _____

Name and Title:

Address

Signature: _____

Name and Title:

Address



AIA® Document A312® – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONSTRUCTION CONTRACT

Date:

Amount:

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: None See Section 16

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name
and Title:

(Any additional signatures appear on the last page of this Performance Bond.)

Signature: _____

Name
and Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:**OWNER'S REPRESENTATIVE:**

(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1** the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2** the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3** the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1** After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2** Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

Sample

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____
(Corporate Seal)

Company: _____
(Corporate Seal)

Signature: _____
Name and Title: _____
Address _____

Signature: _____
Name and Title: _____
Address _____

Application and Certificate for Payment

TO OWNER: PROJECT: APPLICATION NO: DISTRIBUTION TO:

PERIOD TO: OWNER

FROM CONTRACTOR: VIA ARCHITECT: CONTRACT FOR: ARCHITECT

CONTRACT DATE: CONTRACTOR

PROJECT NOS: FIELD

OTHER

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. AIA Document G703®, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM \$ _____
2. NET CHANGE BY CHANGE ORDERS \$ _____
3. CONTRACT SUM TO DATE (Line 1 ± 2) \$ _____
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) \$ _____

5. RETAINAGE:

- a. _____ % of Completed Work
(Columns D + E on G703) \$ _____
- b. _____ % of Stored Material
(Column F on G703) \$ _____

Total Retainage (Lines 5a + 5b, or Total in Column I of G703) \$ _____

6. TOTAL EARNED LESS RETAINAGE \$ _____
(Line 4 minus Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT \$ _____
(Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE \$ _____
9. BALANCE TO FINISH, INCLUDING RETAINAGE
(Line 3 minus Line 6) \$ _____

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$ _____	\$ _____
Total approved this month	\$ _____	\$ _____
TOTAL	\$ _____	\$ _____
NET CHANGES by Change Order	\$ _____	\$ _____

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of: _____

County of: _____

Subscribed and sworn to before me this _____ day of _____

Notary Public: _____

My commission expires: _____

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ _____
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

AIA[®] Document G703[®] – 1992

Continuation Sheet

AIA Document G702[®], Application and Certificate for Payment, or G732[™], Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached. Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:

APPLICATION DATE:

PERIOD TO:

ARCHITECT'S PROJECT NO:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		E THIS PERIOD	F MATERIALS PRESENTLY STORED <i>(Not in D or E)</i>	G TOTAL COMPLETED AND STORED TO DATE <i>(D+E+F)</i>	H BALANCE TO FINISH <i>(C - G)</i>	I RETAINAGE <i>(If variable rate)</i>
			FROM PREVIOUS APPLICATION <i>(D + E)</i>	THIS PERIOD					
GRAND TOTAL									

SCHEDULE OF VALUES

The Contractor is to use the following format. The total Contract Cost is to be itemized in each Subsection listed (as applicable)

DIVISION 01 – GENERAL REQUIREMENTS	Quantity	Cost
01 00 00 General Requirements	_____	_____
01 32 50 Record Drawings, Shop Drawings, Product Data, Samples and other submittals.	_____	_____
	TOTAL	_____
DIVISION 02 – EXISTING CONDITIONS		
02 30 00 Subsurface Investigation	_____	_____
02 41 00 Demolition	_____	_____
	TOTAL	_____
DIVISION 03 – CONCRETE		
03 01 00 Maintenance of Concrete	_____	_____
03 11 00 Concrete Forming	_____	_____
03 15 00 Concrete Accessories	_____	_____
03 20 00 Concrete Reinforcing	_____	_____
03 30 00 Cast-in-place Concrete	_____	_____
03 40 00 Precast Concrete	_____	_____
03 50 00 Cast Decks & Underlayment	TOTAL	_____
DIVISION 04 – MASONRY		
04 01 00 Maintenance of Masonry	_____	_____
04 05 13 Masonry Mortaring	_____	_____
04 05 19 Masonry Anchorage & Reinforcing	_____	_____
04 05 23 Masonry Accessories	_____	_____
04 20 00 Unit Masonry	TOTAL	_____
DIVISION 05 – METALS		
05 05 23 Metal Fastenings	_____	_____
05 10 00 Structural Metal Framing	_____	_____
05 20 00 Metal Joists	_____	_____
05 30 00 Metal Decking	_____	_____
05 50 00 Metal Fabrications	_____	_____
05 58 00 Formed Metal Fabrications	TOTAL	_____
DIVISION 06 – WOOD, PLASTICS, & COMPOSITES		
06 05 23 Fastening and Adhesives	_____	_____
06 10 00 Rough Carpentry	_____	_____
06 13 00 Heavy Timber	_____	_____
06 17 00 Shop-fabricated Structural Wood	_____	_____
06 20 00 Finish Carpentry	TOTAL	_____

DISISION 06 – WOOD, PLASTICS, &
COMPOSITES (CONTINUES)

06 40 00	Architectural Woodwork	_____	_____
06 60 00	Plastic Fabrications	_____	_____
06 80 00	Composite Fabrications	_____	_____
		TOTAL	_____

DIVISION 07 – THERMAL AND MOISTURE
PROTECTION

07 10 00	Dampproofing and Waterproofing	_____	_____
07 18 00	Traffic Coatings	_____	_____
07 19 00	Water Repellents	_____	_____
07 21 00	Thermal Insulation	_____	_____
07 24 00	Exterior Insulation & Finish Systems	_____	_____
07 25 00	Weather Barriers	_____	_____
07 31 00	Shingles and Shakes	_____	_____
07 32 00	Roof Tiles	_____	_____
07 40 00	Roofing and Siding Panels	_____	_____
07 50 00	Membrane Roofing	_____	_____
07 60 00	Flashing and Sheet Metal	_____	_____
07 61 00	Sheet Metal Roofing	_____	_____
07 70 00	Roof & Wall Specialties and Accessories	_____	_____
07 80 00	Fire and Smoke Protection	_____	_____
07 90 00	Joint Protection	_____	_____
07 95 00	Expansion Control	_____	_____
		TOTAL	_____

DIVISION 08 – OPENINGS

08 11 00	Metal Doors and Frames	_____	_____
08 14 00	Wood Doors	_____	_____
08 15 00	Plastic Doors	_____	_____
08 30 00	Specialty Doors and Frames	_____	_____
08 41 00	Entrances and Storefronts	_____	_____
08 44 00	Curtain Wall and Glazed Assemblies	_____	_____
08 51 00	Metal Windows	_____	_____
08 52 00	Wood Windows	_____	_____
08 53 00	Plastic Windows	_____	_____
08 56 00	Special Function Windows	_____	_____
08 60 00	Roof Windows and Skylights	_____	_____
08 70 00	Hardware	_____	_____
08 80 00	Glazing	_____	_____
08 90 00	Louvers and Vents	_____	_____
		TOTAL	_____

DIVISION 09 – FINISHES

09 22 00	Supports for Plaster and Gypsum Board	_____	_____
09 23 00	Gypsum Plastering	_____	_____
09 24 00	Portland Cement Plastering	_____	_____
09 29 00	Gypsum Board	_____	_____
09 30 00	Tiling	_____	_____
		TOTAL	_____

DIVISION 09 – FINISHES (CONTINUED)

09 50 00 Acoustical Ceilings	_____	_____
09 54 00 Specialty Ceilings Quantity	_____	_____
09 61 00 Flooring Treatment	_____	_____
09 62 00 Specialty Flooring	_____	_____
09 63 00 Masonry Flooring	_____	_____
09 64 00 Wood Flooring	_____	_____
09 65 00 Resilient Flooring	_____	_____
09 66 00 Terrazzo Flooring	_____	_____
09 68 00 Carpeting	_____	_____
09 69 00 Access Flooring	_____	_____
09 97 00 Wall Finishes	_____	_____
09 91 00 Painting	_____	_____
09 97 00 Special Coatings	_____	_____
	TOTAL	_____

DIVISION 10 – SPECIALTIES

10 11 00 Visual Display Surfaces	_____	_____
10 14 00 Signage	_____	_____
10 21 00 Compartments and Cubicles	_____	_____
10 22 00 Partitions	_____	_____
10 26 00 Wall and Door Protection	_____	_____
10 28 00 Toilet, Bath, and Laundry Accessories	_____	_____
10 44 00 Fire Protection Specialties	_____	_____
10 51 00 Lockers	_____	_____
10 56 00 Storage Assemblies	_____	_____
10 82 00 Grilles and Screens	_____	_____
	TOTAL	_____

DIVISION 11 – EQUIPMENT

11 15 00 Security, Detention, and Banking Equipment	_____	_____
11 19 00 Detention Equipment	_____	_____
11 23 00 Commercial Laundry and Dry Cleaning Equipment	_____	_____
11 26 00 Unit Kitchens	_____	_____
11 27 00 Photographic Processing Equipment	_____	_____
11 40 00 Foodservice Equipment	_____	_____
11 51 00 Library Equipment	_____	_____
11 52 00 Audio-Visual Equipment	_____	_____
11 53 00 Laboratory Equipment	_____	_____
11 61 00 Theater and Stage Equipment	_____	_____
11 65 00 Athletic and Recreational Equipment	_____	_____
11 70 00 Healthcare Equipment	_____	_____
	TOTAL	_____

DIVISION 12 – FURNISHINGS

12 20 00 Window Treatments	_____	_____
12 30 00 Casework	_____	_____
12 40 00 Furnishings and Accessories	_____	_____
12 50 00 Furniture	_____	_____
	TOTAL	_____

DIVISION 13 –SPECIAL CONSTRUCTION

13 10 00	Special Facility Components	_____	_____
13 34 00	Fabricated Engineered Structures	_____	_____
13 49 00	Radiation Protection	_____	_____
	TOTAL	_____	_____

DIVISION 14 – CONVEYING EQUIPMENT

14 20 00	Elevators	_____	_____
14 30 00	Escalators and Moving Walks	_____	_____
14 40 00	Lifts	_____	_____
14 80 00	Scaffolding	_____	_____
	TOTAL	_____	_____

DIVISION 21 – FIRE SUPPRESSION

21 10 00	Water-Based Fire-Suppression Systems Piping	_____	_____
21 20 00	Fire-Extinguishing Systems	_____	_____
21 30 00	Fire Pumps	_____	_____
	TOTAL	_____	_____

DIVISION 22 – PLUMBING

22 07 00	Plumbing Insulation	_____	_____
22 11 00	Facility Water Distribution	_____	_____
22 13 00	Facility Sanitary Sewerage	_____	_____
22 14 00	Facility Storm Drainage	_____	_____
22 30 00	Plumbing Equipment	_____	_____
22 40 00	Plumbing Fixtures	_____	_____
	TOTAL	_____	_____

DIVISION 23 – HEATING, VENTILATING, & AIR-
CONDITIONING

23 05 93	Testing, Adjusting, & Balancing for HVAC	_____	_____
23 07 00	HVAC Insulation	_____	_____
23 09 00	Instrumentation & Control for HVAC	_____	_____
23 13 00	Facility Fuel-Storage Tanks	_____	_____
23 20 00	HVAC Piping and Pumps	_____	_____
23 30 00	HVAC Air Distribution	_____	_____
23 40 00	HVAC Air Cleaning Devices	_____	_____
23 50 00	Central Heating Equipment	_____	_____
23 60 00	Central Cooling Equipment	_____	_____
23 70 00	Central HVAC Equipment	_____	_____
	TOTAL	_____	_____

DIVISION 26 – ELECTRICAL

26 09 00	Instrumentation & Control for Electrical Systems	_____	_____
26 10 00	Medium-Voltage Electrical Distribution	_____	_____
26 20 00	Low-Voltage Electrical Transmission	_____	_____
26 27 00	Low-Voltage Distribution Equipment	_____	_____
26 30 00	Facility Electrical Power Generating & Storage Equipment	_____	_____
26 40 00	Electrical and Cathodic Protection	_____	_____
26 50 00	Lighting	_____	_____
	TOTAL	_____	_____

DIVISION 27 – COMMUNICATIONS

27 10 00	Structured Cabling	_____	_____
27 20 00	Data Communications	_____	_____
27 30 00	Voice Communications	_____	_____
27 40 00	Audio-Video Communications	_____	_____
27 50 00	Distributed Communications & Monitoring Systems	_____	_____
		TOTAL	_____

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

28 10 00	Electronic Access Control & Intrusion Detection	_____	_____
28 20 00	Electronic Surveillance	_____	_____
28 30 00	Electronic Detection and Alarm	_____	_____
28 40 00	Electronic Monitoring and Control	_____	_____
		TOTAL	_____

DIVISION 31 – EARTHWORK

31 10 00	Site Clearing	_____	_____
31 20 00	Earth Moving	_____	_____
31 31 00	Soil Treatment	_____	_____
31 32 00	Soil Stabilization	_____	_____
31 40 00	Shoring and Underpinning	_____	_____
31 50 00	Excavation Support and Protection	_____	_____
31 60 00	Special Foundations and Load- Bearing Elements	_____	_____
		TOTAL	_____

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 10 00	Bases, Ballasts, and Paving	_____	_____
32 30 00	Site Improvements	_____	_____
32 90 00	Planting	_____	_____
		TOTAL	_____

DIVISION 33 – UTILITIES

33 10 00	Water Utilities	_____	_____
33 30 00	Sanitary Sewerage Utilities	_____	_____
33 40 00	Storm Drainage Utilities	_____	_____
33 50 00	Fuel Distribution Utilities	_____	_____
33 60 00	Hydronic & Steam Energy Utilities	_____	_____
33 70 00	Electrical Utilities	_____	_____
33 80 00	Communications Utilities	_____	_____
		TOTAL	_____

DIVISION 34 – TRANSPORTATION

34 00 00	Transportation	_____	_____
		TOTAL	_____

DIVISION 35 – WATERWAY AND MARINE CONSTRUCTIONS

35 00 00	Waterway and Marine construction	_____	_____
		TOTAL	_____

DIVISION 40-43 – PROCESS EQUIPMENT

DIVISION 44 – POLLUTION CONTROL
EQUIPMENT

44 40 00	Water Treatment Equipment	_____	_____
44 41 00	Packaged Water Treatment Plants	_____	_____
44 50 00	Solid Waste Control	_____	_____
		TOTAL	_____

DIVISION 45 – INDUSTRY SPECIFIC
MANUFACTURING
EQUIPMENT

DIVISION 48 – ELECTRICAL POWER
GENERATION

48 10 00	Electrical Power Generation Equipment	_____	_____
48 70 00	Electrical Power Generation Testing	_____	_____
		TOTAL	_____

SECTION 011100

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contract description.
- B. Contractor use of site and premises.
- C. Work sequence.

1.2 CONTRACT DESCRIPTION

- A. This project includes the interior build out of a portion of an existing building located at 805 Barrow St, Houma, La 70360. The area within the building in the scope of work is 22,053sf. The program includes business functional space such as office, conference rooms, etc. The existing sparkler system will be modified, new HVAC units and electrical components will be installed.

1.3 WORK BY OWNER

- A. None anticipated.

1.4 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow:
 - 1. The User Agency will not occupy the building during construction.
 - 2. Work by Others and Work by Owner.
 - 3. Use of site and premises by public.
 - 4. Coordinate with the building owner as needed. Other tenants space will be worked on at the same time by others.
- B. Construction Operations:
 - 1. Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed.
 - 2. Keeping existing driveways and entrances serving the premises clear and available to the public and employees at all times. Do not use these areas for storage of materials.
 - 3. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of entry as indicated by owner. The Property shall be left as is and any damage accrued during construction must be repaired at the contractor's expense. If additional storage is necessary, obtain and pay for such storage off site.

4. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.
5. The Contractor shall use proper precautions in executing the Work to protect the employees, his/her own workmen, and any person within the construction area. Such precautions include, but are not limited to the following:
 - a) Temporary Fencing off the Work Areas as suitable to owner.
 - b) Posting signs.
 - c) Wearing hardhats.
6. Failure to employ proper precautions which result in any injury shall be deemed the Contractor's responsibility.
7. The general Contractor shall be responsible, daily, for assuring that all of the Contractors' staff and employees and any subcontractors' staff and employees are legally documented to work in the United States of America and the State of Louisiana.
8. The general contractor shall have a superintendent on site at all times that speaks English.

1.5 WORK SEQUENCE

- A. Construct Work in Phases during the construction period, coordinate construction schedule and operations with Architect.
 1. Proper coordination with the Owner and Architect shall be maintained at all times.

1.6 USER AGENCY OCCUPANCY

- A. If the Project is delayed, portions of the building, if found, substantially complete, can be occupied by the owner.
- B. Cooperate with the building owner to minimize conflict. The "the owner" of the project a lessee to a lesser that is developing the other portions of the building.
- C. Schedule the Work to accommodate this requirement.

PART 2 PRODUCTS

\\Not Used

PART 3 EXECUTION

\\Not Used

END OF SECTION 011100

SECTION 012300

ALTERNATIVES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Alternative submission procedures.
- B. Documentation of changes to Contract Sum/Price and Contract Time.

1.2 RELATED SECTIONS

- A. Section 002113 - Instructions to Bidders.
- B. Section 004100 – Louisiana Public Work Bid Form.
- C. Section 012600- Contract Considerations.
- D. Section 013300 – Submittals: Work schedule affected by Alternatives.
- E. Section 016600 - Material and Equipment: Product options and substitutions.

1.3 SUBMISSION REQUIREMENTS

- A. Submit alternatives identifying the effect on adjacent or related components.
- B. Alternatives quoted on Bid Forms will be reviewed and accepted or rejected in the order listed or at the Owner's option as long as it does not affect the low bid. Accepted alternatives will be identified in the Owner-Contractor Agreement.
- C. Coordinate related work and modify surrounding work to integrate the Work of each alternative.

1.4 SCHEDULE OF ALTERNATIVES

- A. Alternative No. 1– Add sound blankets insulation in all walls.
Base Bid: Install sound blankets insulation as indicated on drawings.
- B. Alternative No. 2- Install high abuse gypsum board throughout entire tenant's area.
Base Bid: Install 5/8" gypsum board as specified.
- C. Alternative No. 3- Add portable generator docking station and transfer switch as drawn and specified by engineer.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION 012300

SECTION 012600

CONTRACT CONSIDERATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Schedule of Values.
- B. Application for Payment.
- C. Change procedures.
- D. Alternates.

1.2 RELATED SECTIONS

- A. Section 016600 - Material and Equipment: Product substitutions.

1.3 SCHEDULE OF VALUES

- A. Submit typed schedule found in Division 0.
- B. Submit Schedule of Values in duplicate within SEVEN (7) days after date of Owner-Contractor Agreement.
- C. Format: Utilize Owner provided format found in Schedule of Values, section 007200. Identify each line item with number and title of the major specification Section. Identify bonds and insurance.
- D. Include in each line item, the amount of Allowances specified in this Section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- E. Include within each line item, a directly proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders, with each Payment.

1.4 APPLICATIONS FOR PAYMENT

- A. Submit One (1) copy of each application on AIA Document G 703. Application and Certificate for Payment form found in section 007200.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: Monthly

1.5 CHANGE PROCEDURES

- A. The Architect will advise of minor changes in the work not involving an adjustment to Contract Sum or Contract Time as authorized by AIA A201, 2017 Edition, Paragraph 7.4 by issuing supplemental instructions.

- B. The Architect may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within Seven (7) days.
- C. The Contractor may propose a change by submitting request for change to the Architect, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation. Document any requested substitutions in accordance with Section 016600.
- D. Stipulated Sum Change Order: Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Architect.
- E. Unit Price Change Order: For predetermined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not predetermined, execute Work under a Construction Change Directive. Changes in Contract Sum or Contract Time will be computed as specified for Time and Material Change Order.
- F. Construction Change Directive: Architect may issue a directive signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum or Contract Time. Promptly execute the change.
- G. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect will determine the change allowable in Contract Sum and Contract Time as provided in the Contract Documents.
- H. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- I. Change Order Forms: Use Owner Provided Change Order form in section 007200.
- J. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.6 ALTERNATES

- A. Accepted Alternatives will be identified in Owner Contractor Agreement.
- B. Coordinate related work and modify surrounding work as required.

END OF SECTION 012600

SECTION 013100

COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination.
- B. Alteration project procedures.
- C. Cutting and patching.
- D. Preconstruction conference.
- E. Site mobilization conference.
- F. Progress meetings.
- G. Pre-installation conferences.

1.2 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- E. Coordinate completion and cleanup of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owners partial occupancy.

1.3 ALTERATION PROJECT PROCEDURES

- A. Materials: As specified in product Sections; match existing products and work for patching and extending work.
- B. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- C. Remove, cut, and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to specified condition.
- D. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.

- E. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
- F. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- G. Finish surfaces as specified in individual product Sections.

1.4 CUTTING AND PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements which affects:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Visual qualities of sight-exposed elements.
 - 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching to complete Work, and to:
 - 1. Fit the several parts together, to integrate with other Work.
 - 2. Uncover Work to install or correct ill-timed Work.
 - 3. Remove and replace defective and non-conforming Work.
 - 4. Remove samples of installed Work for testing, if needed.
 - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute work by methods which will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.
- E. Cut rigid materials using masonry saw or core drill.
- F. Restore Work with new products in accordance with requirements of Contract Documents.
- G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. Maintain integrity of wall, ceiling, or roof construction; completely seal voids.
- I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- J. Identify any hazardous substance or condition exposed during the Work to the Architect/Engineer for decision or remedy.

1.5 PRECONSTRUCTION CONFERENCE

- A. Architect will schedule a conference after Notice of Award.
- B. Attendance Required: Owner, Architect, Engineers, and Contractor and Subcontractors.
- C. Agenda:
 - 1. Designation of personnel representing the parties in Contract, and the Architect and Engineers.
 - 2. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
 - 3. Construction Scheduling.
 - 4. Meeting Procedures.
 - 5. Payment on stored Materials.
 - 6. Dress Codes.
 - 7. Inspection and acceptance of equipment put into service during construction period.

1.6 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum bi-monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies within five days to Architect, Owner, participants, and those affected by decisions made.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect and Engineers, as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems which impede planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.

11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to Work.

1.7 PREINSTALLATION CONFERENCES

- A. When required in individual specification Section, convene a pre-installation conference at work site prior to commencing work of the Section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific Section.
- C. Notify Architect four days in advance of meeting date.
- D. Review conditions of installation, preparation and installation procedures, and coordination with related work.

PART 2 PRODUCTS

\\Not Used

PART 3 EXECUTION

\\Not Used

END OF SECTION 013100

SECTION 013300

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed products list.
- D. Shop drawings.
- E. Product data.
- F. Samples.
- G. Manufacturers' instructions.
- H. Manufacturers' certificates.

1.2 RELATED SECTIONS

- A. Section 012600 - Applications for Payment.
- B. Section 017700 - Contract Closeout: Contract warranty and manufacturer's certificates and closeout submittals.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with form similar to AIA Form G810.
- B. Sequentially number the transmittal forms. Re-submittals to have original number with an alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and deliver electronically to Architect. Coordinate submission of related items.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Architect/Engineer review stamps.
- H. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- I. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly

report any inability to comply with provisions.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule at Pre-Construction Conference.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a horizontal bar chart with separate line for each section of Work, identifying first work day of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Indicate estimated percentage of completion for each item of Work at each submission.
- G. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and under Allowances.

1.5 PROPOSED PRODUCTS LIST

- A. At the Pre-Construction Conference, submit to the Architect a complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.6 SHOP DRAWINGS

- A. Submit electronically to the Architect.
- B. After review, reproduce and distribute in accordance with Article on Procedures above and for Record Documents described in Section 017700 - Contract Closeout.

1.7 PRODUCT DATA

- A. Submit electronically to the Architect.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 017700 - Contract Closeout.

1.8 SAMPLES

- A. Submit samples to illustrate functional and esthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect/Engineer's selection.
- C. Include identification on each sample, with full Project information.

- D. Submit the number or samples specified in individual specification Sections; two of which will be retained by Architect.
- E. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

1.9 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.10 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer for review, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.

PART 2 PRODUCTS

\\Not Used

PART 3 EXECUTION

\\Not used

END OF SECTION 013300

SECTION 015000

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, ventilation, telephone service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, and protection of the Work.
- C. Progress cleaning and signage.

1.2 RELATED SECTIONS

- A. Section 017700 - Contract Closeout: Final cleaning.

1.3 TEMPORARY ELECTRICITY

- A. Cost: By Contractor; provide and pay for power service required from source.

1.4 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. Provide and maintain lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft.
- B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- C. Maintain lighting and provide routine repairs.
- D. Permanent building lighting may not be utilized during construction.

1.5 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

1.6 TELEPHONE SERVICE

- A. Provide, maintain, and pay for portable telephone service.

1.7 TEMPORARY WATER SERVICE

- A. Provide, maintain and pay for suitable quality water service required for construction operations at time of project mobilization.
- B. Extend branch piping with outlets located so water is available by hoses with threaded connections.

1.8 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide at time of project mobilization.

1.9 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.10 FENCING

- A. Construction: Contractor's option. Commercial grade chain link fence or orange safety fence, 6 feet tall

1.11 EXTERIOR ENCLOSURES

- A. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.12 INTERIOR ENCLOSURES

- A. Provide temporary partitions to separate work areas from Owner occupied areas, if needed, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.
- B. Construction: Framing and gypsum board sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1.13 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, etc.
- D. Protect finished floors, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

1.14 SECURITY

- A. Assure site is secure and locked when site is vacant. The owner will not be held accountable for unauthorized entry, vandalism, or theft.

1.15 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and rubbish from site weekly and dispose off-site.
- E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.16 SIGNAGE

- A. No signs are allowed without Owner permission except those required by law.

1.17 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 **PRODUCTS**

Not Used.

PART 3 **EXECUTION**

Not Used.

END OF SECTION 015000

SECTION 016600
MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.2 RELATED SECTIONS

- A. Instructions to Bidders

1.3 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.

1.4 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.5 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.

- D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Provide mixing with foreign matter.
- F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

1.6 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

1.7 SUBSTITUTIONS

- A. Instructions to Bidders specify time restrictions for submitting requests for Substitutions during the bidding period to requirements specified in this Section.
- B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the Substitution as for the specified product.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 - 5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit request for Substitution electronically, for consideration. Limit each request to one proposed Substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
3. The Architect will notify Contractor, in writing, of decision to accept or reject request.

PART 2 PRODUCTS

\\Not Used

PART 3 EXECUTION

\\Not used

END OF SECTION 016600

SECTION 017700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Project record documents.
- E. Operation and maintenance data.
- F. Spare parts and maintenance Products.
- G. Warranties and bonds.
- H. Maintenance service.

1.2 RELATED SECTIONS

- A. Section 015000 - Construction Facilities and Temporary Controls: Progress cleaning.

1.3 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents; per the requirements of Paragraph 9.8 of the General Conditions and ready for Architect/Engineer's Substantial Completion Inspection.
- B. Provide submittals to Architect that are required by governing or other authorities.
- C. If at such time that notification is given by Contractor, that work is Substantially Complete and/or Finally Complete, and the Architect determines that it is not, the Contractor shall reimburse the Architect and his Engineer's for time spent on said notification.
- D. Once the Architect certifies Substantial Completion, a detailed list of incomplete or incorrect items, along with a cost to complete or correct such, will be developed and responsibilities of the Owner and Contractor established as of that date.

1.4 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces.
- C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean debris from roofs.
- F. Clean site; sweep paved areas.

- G. Remove waste, surplus materials, and rubbish from the site.
- H. Burning or burying of any rubbish or waste materials on site is strictly prohibited.

1.5 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.6 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - (1) Drawings.
 - (2) Specifications.
 - (3) Addenda.
 - (4) Change Orders and other modifications to the Contract.
 - (5) Reviewed Shop Drawings, Product Data, and Samples.
 - (6) Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - (1) Manufacturer's name and product model and number.
 - (2) Product substitutions or alternates utilized.
 - (3) Changes made by Addenda and modifications.
- F. Record Drawings: Legibly mark each item to record actual construction including:
 - (1) Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - (2) Field changes of dimension and detail.
 - (3) Details not on original Contract drawings.
- G. Submit documents to Architect/Engineer for review 15 days prior to final inspection. Upon Architect's approval, submit two full size copies within 10 days after final inspection.

1.7 OPERATION AND MAINTENANCE DATA

- A. Submit data bound in 8-1/2 x 11 inch (A4) text pages, three D side ring binders with durable plastic covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
- C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 20-pound white paper, in three parts as follows:
 - (1) Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - (2) Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - (a) Significant design criteria.

- (b) List of equipment.
 - (c) Parts list for each component.
 - (d) Operating instructions.
 - (e) Maintenance instructions for equipment and systems.
 - (f) Maintenance instructions for [special] finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
- (3) Part 3: Project documents and certificates, including the following:
- (a) Shop drawings and product data.
 - (b) Certificates.
 - (c) Photocopies of warranties and bonds.
- E. Submit 1 draft copy of completed volumes 15 days prior to final inspection. This copy will be reviewed and returned, with Architect/Engineer comments. Revise content of all document sets as required prior to final submission.
- F. Submit one final set electronically and one hard copy to Architect within 10 days after final inspection.

1.8 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Provide spare parts, maintenance, and extra Products in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed; obtain receipt prior to final payment.

1.9 WARRANTIES AND BONDS

- A. Provide duplicate notarized copies.
- B. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.10 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in specification sections for one year from date of Substantial Completion.
- B. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- D. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the Owner.

END OF SECTION 017700

SECTION 021315
SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Demolition of designated building elements and associated electrical and mechanical components as indicated in the construction documents.

1.2 REGULATORY REQUIREMENTS

- A. Conform to applicable code for demolition of structure, safety of adjacent structures, dust control and construction barricades.
- B. Obtain required permits from authorities.
- C. Notify affected utility companies before starting work and comply with their requirements.
- D. Do not close or obstruct roadways, sidewalks or hydrants, without permits or permission from owner.
- E. Conform to procedures applicable when discovering hazardous or contaminated materials.

1.3 SCHEDULING

- A. Schedule work under the provisions of General Conditions.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PREPARATION

- A. Provide, erect, and maintain temporary barriers and security devices as needed to isolate work areas from building employees and visitors to the site.
- B. Protect existing appurtenances structures and items which are not to be demolished.

3.2 DEMOLITION REQUIREMENTS

- A. Demolition Operations: Do not damage building elements and improvements indicated to remain. Storage or sale of items at project site is prohibited.
- B. Operations: Cease operations if public safety or remaining structures are endangered. Perform temporary corrective measures until operations can be continued properly. Do not resume operations until directed.
- C. Conduct operations with minimum interference to public or private accesses. Maintain protected egress and access at all times.
- D. Security: Provide adequate protection against accidental trespassing. Secure project after work hours.

3.3 DEMOLITION

- A. Utilities: Locate, identify, disconnect, and seal or cap off utilities to be demolished.
- B. Do not interrupt utilities serving occupied or used facilities without the written permission of the Owner and authorities having jurisdiction.
- C. Remove demolished materials from site.
- D. Do not burn or bury materials on site. Leave site in clean condition.
- E. Remove temporary work.

END OF SECTION 021300

SECTION 033543

POLISHED AND DYED CONCRETE FINISHING

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Grinding of the slab surface to receive clear reactive, penetrating liquid hardener/densifier.
 - 2. Application of clear reactive, penetrating liquid hardener and concrete dye.
 - 3. Progressively polishing and burnishing of the slab surface to achieve finish requirements.
 - 4. Application of stain resistant surface treatment.

- B. Related sections include the following:
 - 1. Section 012500- Substitution Procedures.
 - 2. Section 013300- Submittal Procedures.
 - 3. Section 014580- Testing Laboratory Services.
 - 4. Section 016000- Product Requirements.
 - 5. Section 017400- Cleaning and Waste Management.
 - 6. Section 033000- Cast-in-Place Concrete.
 - 7. Section 079000- Joint Sealants.

1.2 REFERENCES

- A. The date of the standard is that in effect as the date of receipt of bids for the project.

- B. Living Building Challenge (LBC).

- C. Scientific Certification System (SCS) Indoor Air Quality Gold Certification.

- D. NSF International/Nonfood Compound Registration.

- E. American National Standard Institute / National Floor Safety Institute ANSI/NSFI B101.1 Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials

- F. ASTM International (ASTM):
 - 1. C1028 - Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
 - 2. C1353 – Standard Test Method for Abrasion Resistance of Dimension Stone Subjected to Foot Traffic Using a Rotary Platform, Double-Head Abraser.
 - 3. D523- Standard Test Method for Specular Gloss.
 - 4. D1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
 - 5. D4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
 - 6. E96/96M Method B (Water Method) - Standard Test Methods for Water Vapor Transmission of Materials.
 - 7. G154 -Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting: Convene before the start of work on new concrete slabs, patching of existing concrete slabs and start of application of concrete finish system.
 - 1. Require attendance of parties directly affecting work of this Section, including the Owner's Representative, Contractor, Architect, concrete installer, and applicator. Meeting should only convene when required parties are present.
 - 2. Review the following:
 - a. Physical requirements of completed concrete slab and slab finish.
 - b. Locations and time of test areas.
 - c. Protection of surfaces not scheduled for finish application.
 - d. Surface preparation.
 - e. Application procedure.
 - f. Final appearance of dyed concrete.
 - g. Quality control.
 - h. Cleaning.
 - i. Protection of finish system.
 - j. Coordination with other work.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Submit manufacturer's product data sheets and tested physical and performance properties on products to be used for the work.
- B. VOC Certification: Submit certification that products furnished comply with regulations controlling use of volatile organic compounds (VOC).
- C. Certificates:
 - 1. Certificates by manufacturer stating that installer is listed applicator of special concrete finishes, and has completed the necessary training programs.
- D. Floor Protection Plan.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Applicator to be familiar with the specified requirements and the methods needed for proper performance of work of this section. Applicator must have availability of proper equipment to perform work within scope of this project on a timely basis. applicator should have successfully performed a minimum of 5 projects of similar scope and complexity.
- B. Mock-up: On site, prior to the start of the polished concrete finishing process.
 - 1. Require attendance of parties directly affecting work of this Section, including the Contractor, Architect, applicator, and Owner's Representative.
 - 2. Notify the above parties one week in advance of date and time when mock-up will be completed.
 - 3. Demonstrate the materials, equipment and application methods to be used for work specified herein in pre-approved location approximately 50 sq. ft. in area or as directed by the Architect [Owner's Representative].
 - 4. Retain approved mock-up during construction as a standard for judging the completed work. Areas may remain as part of the completed work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original containers, with seals unbroken, bearing manufacturer labels indicating brand name and directions for storage.
- B. Store concrete hardener/densifier and surface protectant treatment in environment recommended on published manufacturer's product data sheets.
 - 1. Store containers upright in a cool, dry, well-ventilated place, out of the sun with temperature between 40 and 100 degrees F (4 and 38 degrees C).
 - 2. Protect from freezing.
 - 3. Store away from other chemicals and potential sources of contamination.
 - 4. Keep lights, fire, sparks and heat away from containers.
 - 5. Do not drop containers or slide across sharp objects.
 - 6. Do not stack pallets more than three high.
 - 7. Keep containers tightly closed when not in use.

1.7 FIELD CONDITIONS

- A. Environmental limitations:
 - 1. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting performance and finishing requirements.
- B. Close areas to traffic during floor application and after application for time period recommended in writing by manufacturer.
- C. Protect the completed slab to prevent damage by the other trades during floor Completion.
- D. Temperature Limitations:
 - 1. Apply when surface and air temperature are between 40 degrees F (4 degrees C) and above 95 degrees F (35 degrees C) unless otherwise indicated by manufacturer's written instructions.
 - 2. Apply when surface and air temperatures are expected to remain above 40 degrees F (4 degrees C) for a minimum of 8 hours after application, unless otherwise indicated by manufacturer's written instructions.
- E. Apply when air conditions are calm to minimize surface treatment contacting surface not intended to be finished.
- F. Do not apply to frozen substrate. Allow adequate time for substrate to thaw, if freezing conditions exist before application.
- G. Apply a minimum of 24 hours after rain event. Suspend application when rain is anticipated for a period of 8 hours after application, unless otherwise indicated by manufacturer's written instructions.
- H. Temporary Heat: Ambient temperature of 50 degrees F (10 degrees C) minimum.
- I. Ventilation: Provide adequate ventilation in confined or enclosed areas in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Substitutions: In accordance with instruction to bidders 4.3.

2.2 MATERIALS

- A. Clear, water-based, blended surfactant cutting aid: Product used to extend the life of diamond tooling and minimize concrete surface scratches during the wet-grinding process.
1. Product: Consolideck First Cut manufactured by PROSOCO, Inc., Lawrence, KS, (800) 255-4255, www.prosoco.com.
 2. Subject to compliance with the following requirements:
 - a. Comply with national, state and district AIM VOC regulations and contains 0.5 g/L or less.
- B. Liquid Concrete Repair Material: Low-odor, liquid fill material used to fill pinholes, small air voids and pop-outs, micro-cracks and other gaps in concrete surface during grinding.
1. Product: Consolideck Grind-N-Fill manufactured by PROSOCO, Inc., Lawrence, KS, (800) 255-4255, www.prosoco.com.
 2. Subject to compliance with the following requirements:
 - a. Comply with national, state and district AIM VOC regulations and contain 100 g/L or less.
- C. Pre-Densifier Concrete Cleaner: Cleaner to remove dirt, oil, grease, and other stains from existing slab surface.
1. Product: Consolideck Cleaner/Degreaser manufactured by PROSOCO, Inc., Lawrence, KS, (800) 255-4255, www.prosoco.com.
- D. Penetrating Concrete Hardener/Densifier: Lithium silicate hardener/densifier.
1. Product: Consolideck LS, manufactured by PROSOCO, Inc., Lawrence, KS, (800) 255-4255, www.prosoco.com.
 2. Subject to compliance with the following requirements:
 - a. Living Building Challenge 2.0/2.1 Red List Compliant.
 - b. Recipient of Scientific Certification System (SCS) Indoor Air Quality Gold Certification.
 - c. Comply with national, state and district AIM VOC regulations and contain 50 g/L or less.
 - d. Registered as an approved NSF International/Nonfood Compound Registration.
 - e. Abrasion Resistance: Greater than 50 percent improvement over untreated samples when tested in accordance with ASTM C1353.
 - f. Achieve 'High Traction Range' readings when tested in accordance with ANSI B101.1.
 - g. Coefficient of Friction: Greater than 0.60 dry, Greater than 0.60 wet when tested in accordance with ASTM C1028.
 - h. Adhesion: Greater than 10 percent increase in pull-off strength when compared to an untreated sample when tested in accordance with ASTM D4541.
 - i. Water Vapor Transmission: 100 percent retained when compared to untreated samples when tested in accordance with ASTM E96/96M Method B (Water Method).
 - j. UV Stability: No degradation or yellowing of material when tested in accordance with ASTM G154.

- E. Translucent Concrete Dye: General Purpose water-carried, penetrating, translucent colored dye.
 - 1. Product: Consolideck GemTone Stain manufactured by PROSOCO, Inc., Lawrence, KS, (800) 255-4255, www.prosoco.com.
 - 2. Subject to compliance with the following requirements:
 - a. Recipient of Scientific Certification System (SCS) Indoor Air Quality Gold Certification.
 - B. Comply with national, state and district AIM VOC regulations.

- F. Interior Concrete Protective Treatments:
 - 1. General Purpose high-gloss film forming premium sealer, lithium silicate hardener/densifier.
 - a. Product: Consolideck LSGuard, manufactured by PROSOCO, Inc., Lawrence, KS, (800) 255-4255, www.prosoco.com.
 - b. Subject to compliance with the following requirements:
 - i. Living Building Challenge 2.0/2.1 Red List Compliant.
 - ii. Recipient of Scientific Certification System (SCS) Indoor Air Quality Gold certification.
 - iii. Comply with national, state and district AIM VOC regulations.
 - iv. Registered as an approved NSF International/Nonfood Compound Registration.
 - v. Achieve 'High Traction Range' readings when tested in accordance with ANSI B101.1.
 - vi. Coefficient of Friction: Greater than 0.60 dry, Greater than 0.60 wet when tested in accordance with ASTM C1028.
 - vii. Adhesion: Greater than 10 percent increase in pull-off strength when compared to an untreated sample when tested in accordance with ASTM D4541.
 - viii. UV Stability: No degradation or yellowing of material when tested in accordance with ASTM G154.

 - 2. General Purpose medium gloss, film forming sealer
 - a. Product: Consolideck PolishGuard, manufactured by PROSOCO, Inc., Lawrence, KS, (800) 255-4255, www.prosoco.com.
 - b. Subject to compliance with the following requirements:
 - i. Living Building Challenge 2.0/2.1 Red List Compliant.
 - ii. Recipient of Scientific Certification System (SCS) Indoor Air Quality Gold Certification.
 - iii. Comply with national, state and district AIM VOC regulations.
 - iv. Achieve 'High Traction Range' readings when tested in accordance with ANSI B101.1.
 - v. Coefficient of Friction: Greater than 0.60 dry, greater than 0.60 wet when tested in accordance with ASTM C1028.
 - vi. Stain Resistance: Achieve limited or no adverse effects when tested in accordance with ASTM D1038.
 - vii. UV Stability: No degradation or yellowing of material when tested in accordance with ASTM G154.

2.3 EQUIPMENT

- A. Auto Scrubber Machine: For cleaning operations.
- B. Hand Grinder or stand-up edger for edge grinding/polishing.

- C. Polishing Equipment:
 - 1. Dry grinding/polishing machines shall include a dust extraction system, including HEPA filtration vacuum.
- D. Diamond Segments:
 - 1. Use heads from the same manufacturers throughout the entirety of the project.
- E. Diamond Heads Types:
 - 1. Metal Diamonds: 60, 80 or 150.
 - 2. Hybrid Style Diamonds: 50 or 100.
 - 3. Resin Bonded, Phenolic Diamonds: 100, 200, 400, 800, 1300 and 3000 (if necessary).
- F. Burnishing Machine and Burnishing Pads to produce specified results.
 - 1. Burnishing Machine: High speed burnisher, generating pad speeds of 1,500 RPM or higher, as recommended by protective treatment manufacturer. Dust skirt must be installed at time of work.
 - 2. Burnishing Pads: as recommended by protective treatment manufacturer.
 - a. White Burnishing Pad, non-abrasive,
 - b. Consolideck Heat Pad manufactured by PROSOCO, Inc., Lawrence, KS, (800) 255-4255, www.prosoco.com.

PART 3 EXECUTION

3.1 EXECUTION

- A. Examine substrate with installer present for conditions affecting performance of finish. Correct conditions detrimental to timely and proper work. Notify the Architect [Owner's Representative] in writing of conditions detrimental to the proper and timely completion of the work.
- B. Do not begin installation until unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.2 PREPERATION

- A. Clean dirt, dust, oil, grease and other contaminants that interfere with penetration or performance of specified product from surfaces. Use appropriate concrete cleaners approved by the concrete surface treatment manufacturer where necessary. Rinse thoroughly using pressure water spray to remove cleaner residues. Allow surfaces to dry completely before application of product.
- B. Repair, patch and fill cracks, voids, defects and damaged areas in surface as approved by the Architect. Allow repair materials to cure completely before application of product.
- C. Variations in substrate texture and color will affect final appearance and should be corrected prior to application of sealer/hardener system and the polishing steps.
- D. Protect surrounding areas prior to application. If product is accidentally misapplied to adjacent surfaces, flush with water immediately before material dries.
- E. Avoid contact in areas not to be treated. Avoid contact with metal, glass and painted surfaces.
- F. Seal open joints in accordance with Section 07 90 00.

- G. Apply specified sealants and caulking and allow complete curing before application of penetrating concrete hardener/densifier.
- H. Do not proceed until unsatisfactory conditions have been corrected.

3.3 CONCRETE POLISHING

- A. Adhere to industry standard polishing procedures for dry and wet grinding/polishing.
- B. Scrub and rinse slab surface with clean water and vacuum with auto-scrubber between and after final polishing passes.
- C. Sequential progression of diamond polishing steps shall be required and limited to no more than double the grit value of the previous diamonds used.
- D. Overlap adjacent polishing passes by 25 percent
- E. Perform each pass perpendicular to the other pass north/south then east/west; multiple passes may be needed.
- F. Progressively grind and polish the slab surface utilizing approved diamond segments as necessary to produce Finishing requirements.
 - 1. Apply liquid concrete repair material to fill gaps, voids and pop-outs during grinding operation per manufacturer's published recommendations.
 - 2. Apply cutting aid chemical during the initial wet grinding process per manufacturer's published recommendations. (Typically before the 200 grit resin or lower).

3.4 APPLICATION OF PENETRATING TRANSLUCENT DYE AND CONCRETE HARDENER/DENSIFIER

- A. Dilute translucent dye with fresh water, or other approved solvent as recommended by manufacturer to create desired color. (Apply within 24 hours of dilution).
- B. Lightly wet a clean microfiber pad with diluted translucent concrete dye, leaving the pad damp.
- C. Apply prepared diluted translucent dye to the clean, dry concrete with a low pressure sprayer with a conical spray pattern per manufacturer's recommendations. (Typically after 200 -grit).
- D. Using pre-wet microfiber pad, immediately spread the spray-applied diluted translucent dye to ensure uniform wetting and color distribution.
- E. Allow treated surface to dry for one hour minimum prior to walking on or auto scrubbing.
- F. Remove excess stain residue by cleaning slab with auto scrubber or dry burnisher and allow treated surface to dry.
- G. Dry polish floor with 400 grit resin diamonds.
- H. Clean slab with auto scrubber and allow surface to dry.
- I. Apply second coat of penetrating diluted translucent dye, if desired. (Repeating above steps A through E) Allow treated surface to dry for one hour minimum prior to auto scrubbing or burnishing (as an alternative, both coats of dye may be applied at 400 grit, waiting one hour after each coat prior to auto-scrubbing or burnishing).

- J. Remove excess stain residue by cleaning slab with auto scrubber or dry burnisher and allow treated surface to dry.
- K. Apply a single coat of hardener/densifier with a low pressure sprayer fitted with a 0.5 gpm spray tip
- L. Apply sufficient material to wet the surface without producing puddles. Use a clean soft-bristle push broom or microfiber pad to spread the hardener/densifier evenly to achieve uniform wetting. Avoid spreading once drying begins. Scrubbing is not necessary.
- M. Allow treated surface to dry.
- N. Continue progressively dry polishing floor with required resin diamonds to produce desired final finish.

3.5 APPLICATION OF INTERIOR CONCRETE PROTECTIVE TREATMENT

- A. Application of general purpose, high gloss protective treatment:
 1. Apply per manufacturer's published recommendations to clean, dry slab at the completion of mechanically polishing the slab surface.
 2. Lightly wet a clean microfiber pad with concrete protective treatment and wring out excess, leaving the pad damp.
 3. Working from one control joint to another, apply a light, fine spray of concrete protective treatment to a small section of the floor using a clean, pump-up sprayer fitted with a 0.5 gpm spray tip, at an estimated coverage rate of 2000 to 3000 square feet per gallon.
 4. Using the damp microfiber pad and firm downward pressure, immediately spread the protective treatment to produce a thin, even coating. Spread the product as far as possible while maintaining a wet edge. Properly applied, protective treatment dries quickly. Stop spreading once drying begins. Avoid overlapping.
 5. Allow to dry tack free, typically 20 to 60 minutes.
 6. Once dry, high- speed burnish slab surface fitted with burnishing pad to increase gloss and to help the treatment fuse and bond with the concrete for increased durability and longevity. Surface temperatures immediately behind the burnisher must achieve 90.5 degrees Fahrenheit. (Burnish between coats if multiple applications are desired.)
 7. Repeat above steps 1 through 6, as necessary for additional applications of protective treatment, to achieve desired final finish (Maximum 3 coats).
- B. Application of general purpose, medium gloss protective treatment:
 1. Apply per manufacturer's published recommendations to clean, dry slab at the completion of mechanically polishing the slab surface.
 2. Lightly wet a clean microfiber pad with general purpose, medium gloss protective treatment and wring out excess, leaving the pad damp.
 3. Spray-apply protective treatment using a clean, pump-up sprayer fitted with a 0.5 gpm conical or fan spray tip at an estimated coverage rate of 400 to 800 square feet per gallon. Work from one control joint to another.
 4. Spread with the damp microfiber pad. Maintain a thin, even coating and wet edge. Stop spreading once drying begins. Do not overlap. Repeat steps 1 through 4. Two coats are recommended for maximum protection.
 5. To increase gloss, wait at least 60 minutes after the final coat is applied, and then use a high- speed burnisher fitted with a white polishing pad. Burnish at a fast walking pace.

3.6 SLAB PROTECTION

- A. Protect finished floors to prevent damage including staining, gouges and scratching by construction traffic and activities until possession.
- B. Do not drag or drop equipment or material across the slab which will scratch or chip it.
- C. Inspect tires for debris prior to use on slab. Remove embedded items which may cause damage to floor slab.
- D. Clean up spills on slab immediately. Provide cleaning chemicals and absorptive materials.
- E. Develop a concrete protection procedure which addresses the following procedures:
 - 1. Communication of protection plan to subcontractors and vendors.
 - 2. Procedures for cleaning up slab spills, including use of and availability of cleaning chemicals and absorptive materials at Site.
- F. Provide a clean slab using concrete maintenance cleaner within an auto scrubber, equipped with soft nylon brushes, in accordance with manufacturer's recommendations.

3.7 FINISHING REQUIREMENTS

- A. Appearance:
 - 1. Interior exposed finished slab areas must consist of the following:
 - a. Slab surface must meet the desired sheen, as discussed in Pre-Installation meeting and be consistent with approved Mock-up.
 - b. Slab surface must have a consistent look and exhibit a finish that has no evidence of streaking or burnish marks.
 - c. White residue or hazy appearance is not acceptable.
 - d. Exposure of aggregate beyond CPAA Class [A-Cream] is not acceptable.
 - 2. Interior exposed finished slab areas must consist of the following CPAA Gloss Level:
 - a. Finished Gloss Level 2 – Satin Gloss Appearance.

END OF SECTION 033543

SECTION 061000

WOOD BLOCKING AND CURBING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Roof curbs.
- B. Blocking in wall and roof openings.
- C. Wood furring and grounds.
- D. Plywood Sheathing over Metal Framing.
- E. Concealed wood blocking for support of counters and wood trim.
- F. Telephone and electrical panel back boards.
- G. Preservative treatment of wood.

1.2 RELATED SECTIONS

- A. Division 23 and 26.
- B. Section 092116 – Gypsum Board Systems.

1.3 REFERENCES

- A. ALSC (American Lumber Standards Committee) - Softwood Lumber Standards.
- B. ANSI A208.1 - Mat-Formed Wood Particleboard.
- C. APA (American Plywood Association).
- D. AWPA (American Wood Preservers Association) C1 - All Timber Products Preservative Treatment by Pressure Process.
- E. AWPA (American Wood Preservers Association) C20 - Structural Lumber Fire Retardant Treatment by Pressure Process.
- F. NFPA (National Forest Products Association).
- G. RIS (Redwood Inspection Service).
- H. SPIB (Southern Pine Inspection Bureau).
- I. WCLIB (West Coast Lumber Inspection Bureau).
- J. WWPA (Western Wood Products Association).

1.4 SUBMITTALS FOR REVIEW

- A. Section 013300 - Procedures for submittals.
- B. Product Data: Provide technical data on wood preservative materials.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with the following agencies:
 - 1. Lumber Grading Agency: Certified by ALSC.
 - 2. Plywood Grading Agency: Certified by APA.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Lumber Grading Rules: NFPA.
- B. Miscellaneous Framing: Stress Group D, Southern Yellow Pine species, 19 percent maximum moisture content, pressure preservative treat.
- C. Plywood: APA Structural I, Grade C-D; Pressure preservative treat at exterior locations.

2.2 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Fasteners: Hot dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
 - 2. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. [Bolt or ballistic fastener for anchorages to steel.

2.3 FACTORY WOOD TREATMENT

- A. Wood Preservative (Pressure Treatment): AWPA Treatment C1 using water borne preservative with 0.40 percent retainage.

PART 3 EXECUTION

3.1 FRAMING

- A. Set members level and plumb, in correct position.
- B. Place horizontal members, crown side up.
- C. Construct curb members of single pieces.
- D. Space framing and furring 16 inches oc.
- E. Curb roof openings except where prefabricated curbs are provided. Form corners by alternating lapping side members.

3.2 SHEATHING

- A. Secure sheathing to framing members with ends over firm bearing and staggered.
- B. Install telephone and electrical panel back boards with plywood sheathing material where required. Size the back board by 12 inches beyond size of electrical panel.

3.3 SCHEDULES

- A. Roof Blocking: S/P/F species, 19 percent maximum moisture content, pressure preservative treatment.
- B. Telephone and Electrical Panel Boards: 3/4 inch thick, square edges.
- C. Sheathing over Metal Framing: 5/8 inch thick, if indicated on drawings.

END OF SECTION 061000

SECTION 064023

INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior standing and running trim, transparent finished.
 - 2. Wood cabinets, transparent finished.
 - 3. Plastic-laminate countertops.
 - 4. Shop finishing of transparent finished interior woodwork.
- B. Related Sections include the following:
 - 1. Division 06 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.

1.3 DEFINITIONS

- A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.4 SUBMITTALS

- A. Product Data: For panel products high-pressure decorative laminate adhesive for bonding plastic laminate, cabinet hardware and accessories, and finishing materials and processes.
 - 1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show details full size.
 - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 3. Show locations and sizes of cutouts and holes for plumbing fixtures faucets and other items installed in architectural woodwork.
- C. Samples for Initial Selection:
 - 1. Shop-applied transparent finishes.
 - 2. Shop-applied opaque finishes.
 - 3. Plastic laminates.
- D. Samples for Verification:
 - 1. Lumber with or for transparent finish, not less than 50 sq. in., for each species and cut, finished on 1 side and 1 edge.

2. Veneer leaves representative of and selected from flitches to be used for transparent-finished woodwork.
 3. Veneer-faced panel products with or for transparent finish, 8 by 10 inches, for each species and cut. Include at least one face-veneer seam and finish as specified.
 4. Lumber and panel products with shop-applied opaque finish, 50 sq. in. for lumber and 8 by 10 inches for panels, for each finish system and color, with 1/2 of exposed surface finished.
 5. Plastic laminates, 8 by 10 inches, for each type, color, pattern, and surface finish.
 6. Corner pieces as follows:
 - a. Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
 - b. Miter joints for standing trim.
 7. Exposed cabinet hardware and accessories, one unit for each type.
- E. Product Certificates: For each type of product, signed by product manufacturer.
- F. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- G. Qualification Data: For Installer.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Certified participant in AWI's Quality Certification Program.
- B. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers and transparent-finished wood doors that are required to be of same species as woodwork.
- C. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
 1. Provide AWI Quality Certification Program certificates indicating that woodwork, including installation, complies with requirements of grades specified.
- D. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.
- E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Section 013100.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.
- C. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
 - 2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.
- B. Hardware Coordination: Distribute copies of approved hardware schedule specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)" to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Species and Cut for Transparent Finish: Select maple, plain sawn.
- C. Wood Products: Comply with the following:
 - 1. Hardboard: AHA A135.4.
 - 2. Medium-Density Fiberboard: ANSI A208.2, Grade MD.
 - 3. Particleboard: ANSI A208.1, Grade M-2.
 - 4. Particleboard: Straw-based particleboard complying with requirements in ANSI A208.1, Grade M-2, except for density.

5. Softwood Plywood: DOC PS 1, Medium Density Overlay.
 6. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1.
- D. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
1. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:
 - a. Formica Corporation.
 - b. Nevamar Company, LLC; Decorative Products Div.
 - c. Wilsonart International; Div. of Premark International, Inc.
 2. Color and Pattern: As selected by Architect from manufacturer's full range.

2.2 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)."
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 100 degrees of opening, self-closing.
- C. Continuous Hinges: Stainless steel, 0.060 inch thick, with 0.125 inch diameter pin, full height of display case door, leaf width to match door thickness.
- D. Wire Pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter.
- E. Catches: Magnetic catches, BHMA A156.9, B03141.
- F. Adjustable Shelf Standards and Supports: BHMA A156.9, B04102; with shelf brackets, B04112.
- G. Drawer Slides: BHMA A156.9, B05091.
1. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension type; zinc-plated steel ball-bearing slides.
 2. Box Drawer Slides: Grade 1HD-100; for drawers not more than 6 inches high and 24 inches wide.
 3. Pencil Drawer Slides: Grade 1; for drawers not more than 3 inches high and 24 inches wide.
- H. Locks: Provide locks on all drawers and doors.
1. Door Locks: BHMA A156.11, E07121.
 2. Drawer Locks: BHMA A156.11, E07041.
 3. All locks on drawers and doors: Keyed alike.
- I. Grommets for Cable Passage through Countertops: 1-1/4-inch OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.
1. Product: Subject to compliance with requirements, provide "OG series" by Doug Mockett & Company, Inc.
- J. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
1. Satin Stainless Steel: BHMA 630.

- K. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.3 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- D. Adhesive for Bonding Plastic Laminate: Un-pigmented contact cement.
 - 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.4 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Custom-grade interior woodwork complying with referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - 1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members 3/4 Inch Thick or Less: 1/16 inch.
 - 2. Edges of Rails and Similar Members More Than 3/4 Inch Thick: 1/8 inch.
 - 3. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch.
- D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
 - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- E. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 - 1. Seal edges of openings in countertops with a coat of varnish.

- F. Install glass to comply with applicable requirements in Division 08 Section "Decorative Glass Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

2.5 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

- A. Wood Species and Cut: Select maple, plain sawn.
 - 1. Provide split species on trim that faces areas with different wood species, matching each face of woodwork to species and cut of finish wood surfaces in areas finished.
- B. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- C. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- D. Assemble moldings in plant to maximum extent possible. Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.

2.6 WOOD CABINETS FOR TRANSPARENT FINISH

- A. AWI Type of Cabinet Construction: Flush overlay.
- B. Wood Species and Cut for Exposed Surfaces: Select maple, plain sawn.
 - 1. Matching of Veneer Leaves: Slip match.
- C. Semi-exposed Surfaces: Provide surface materials indicated below:
 - 1. Surfaces Other Than Drawer Bodies: Same species and cut indicated for exposed surfaces.
 - 2. Drawer Sides and Backs: Solid-hardwood lumber, same species indicated for exposed surfaces.
 - 3. Drawer Bottoms: Hardwood plywood.
- D. Provide dust panels of 1/4-inch plywood or tempered hardboard above compartments and drawers, unless located directly under tops.

2.7 PLASTIC-LAMINATE COUNTERTOPS

- A. High-Pressure Decorative Laminate Grade: HGS.
- B. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As indicated by manufacturer's designations.
 - 2. Match Architect's sample.
 - 3. As selected by Architect from manufacturer's full range in the following categories:
 - a. Solid colors, matte finish.
 - b. Solid colors with core same color as surface, matte finish.
 - c. Wood grains, matte finish.
 - d. Patterns, matte finish.
- C. Edge Treatment: Same as laminate cladding on horizontal surfaces. All counters shall have rolled nosing.

- D. Core Material: Medium-density fiberboard Particleboard made with exterior glue Medium-density fiberboard made with exterior glue or exterior-grade plywood.
- E. Core Material at Sinks: Exterior-grade plywood.
- F. Backer Sheet: Provide plastic-laminate backer sheet, Grade BKL, on underside of countertop substrate.
- G. Paper Backing: Provide paper backing on underside of countertop substrate.

2.8 SHOP FINISHING

- A. Grade: Provide finishes of same grades as items to be finished.
- B. General: Shop finish transparent-finished interior architectural woodwork at fabrication shop as specified in this Section.
- C. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
 - 1. Back-priming: Apply one coat of clear sealer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require back-priming when surfaced with plastic laminate or backing paper.
- D. Transparent Finish:
 - 1. AWI Finish System: Catalyzed polyurethane.
 - 2. Staining: None required.
 - 3. Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.
 - 4. Sheen: Semigloss, 46-60 gloss units measured on 60-degree gloss meter per ASTM D 523.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and back-priming.

3.2 INSTALLATION

- A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
- B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

- D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- F. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 60 inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
 - 1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base if finished.
 - 2. Install wall railings on indicated metal brackets securely fastened to wall framing.
 - 3. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches.
- G. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Maintain veneer sequence matching of cabinets with transparent finish.
 - 3. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips or toggle bolts through metal backing or metal framing behind wall finish.
- H. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
 - 3. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."
 - 4. All edges shall have rolled nosing.
- I. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 064023

SECTION 072116

BATT INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Acoustical Batt Insulation for interior wall construction.

1.2 RELATED SECTIONS

- A. Section 092116 - Gypsum Board Systems.

1.3 REFERENCES

- A. ASTM C665 - Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- B. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- C. NFPA 255 - Test of Surface Burning Characteristics of Building Materials.
- D. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.4 SYSTEM DESCRIPTION

- A. Materials of This Section: Provide continuity of thermal barrier at building enclosure elements. Provide sound attenuation Batts within walls as indicated on drawing to achieve a minimum STC rating of 50.

1.5 SUBMITTALS

- A. Submit under provisions of Section 013300 - Procedures for submittals.
- B. Product Data: Provide data on product characteristics, performance criteria, limitations, and sound absorption.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.6 COORDINATION

- A. Coordinate work under provisions of Section 013300 - Procedures for submittals.

PART 2 PRODUCTS

2.1 MANUFACTURERS - INSULATION MATERIALS

- A. Knaflex Insulation Ecobatt Acoustical Insulation
- B. Owens Corning Product Metal Framing Pink Next Gen Sound Attenuation Batt.
- C. Or Equal

2.2 MATERIALS

- A. Sound Attenuation Batt insulation: ASTM C665; performed, glass fiber blanket insulation, conforming to the following:

1. Density: 2 lbs. /cu. Ft. min.
 2. Thickness: Walls – 3 1/2 inches or 6 ½ inches depending on stud size.
 3. Width: Walls - 16 – 24 inches.
 4. Length: Walls - 96 inch.
 5. Facing: Unfaced.
 6. Surface Burning Characteristics: ASTM E84.
 7. Maximum flame spread: <25
 8. Maximum smoke developed: <50
 9. Combustion Characteristics: Passes ASTM E136.
 10. Fire Resistance Ratings: Part of ASTM E119 fire tested wall assemblies.
 11. Sound Transmission Class: ASTM C423, STC based on manufacturer's published data on thickness and wall assembly.
- C. Staples: Steel wire; galvanized; type and size to suit application.
- D. Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inch wide.
- E. Insulation Fasteners: Steel impale spindle and clip on flat metal base, self-adhering backing, length to suit insulation thickness, capable of securely and rigidly fastening insulation in place.
- F. Wire Mesh: Galvanized steel, hexagonal wire mesh.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 016600.
- B. Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.

3.2 INSTALLATION

- A. Install insulation in accordance with insulation manufacturer's instructions.
- B. Install in walls, roof, and ceiling spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.
- E. All wall Friction Fit Insulation shall be secured with cross members as required until substrate material is applied.
- F. Sound Attenuation Insulation shall be permanently attached to metal studs with metal stud strapping or crossing material at 48" o.c. MDX.
- G. Sound Attenuation Insulation in ceiling. shall be sized to fit accordingly.
- H. Any insulation found to be damaged due to moisture shall be removed and taken from job site as directed by Architect.

END OF SECTION 072116

SECTION 079100

JOINT SEALERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preparing substrate surfaces.
- B. Sealant and joint backing.

1.2 RELATED SECTIONS

- A. Section 081213 - Standard Steel frames.
- B. Section 084113 - Sealant and joint backing.

1.3 REFERENCES

- A. ASTM C790 - Use of Latex Sealing Compounds.
- B. ASTM C804 - Use of Solvent-Release Type Sealants.
- C. ASTM C834 - Latex Sealing Compounds.
- D. ASTM C919 - Use of Sealants in Acoustical Applications.
- E. ASTM C920 - Elastomeric Joint Sealants.
- F. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.
- G. ASTM D1565 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Open-Cell Foam).
- H. SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

1.4 SUBMITTALS

- A. Submit under provisions of Section 013300 Submittals: Procedures for submittals.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- C. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, and perimeter conditions requiring special attention.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform acoustical sealant application work in accordance with ASTM C919.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Applicator: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.
- B. Do not install solvent curing sealants in enclosed building spaces.

1.8 COORDINATION

- A. Coordinate work under provisions of Section 013300 Submittals.
- B. Coordinate the work with all sections referencing this section.

1.9 WARRANTY

- A. The sealant guarantee shall be a 10-year from the date of acceptance of the project material and labor guarantee/warranty, furnished by the manufacture of the materials.

PART 2 PRODUCTS

2.1 SEALANTS

- A. One-part High Performance Elastomeric Urethane Sealant: Product - Sonolastic NP1 or approved equal.

2.2 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: ASTM D1056; round, closed cell polyethylene foam rod; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

- A. Remove loose materials and foreign matter which might impair adhesion of sealant.

- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions.
- D. Protect elements surrounding the work of this section from damage or disfiguration.

3.3 INSTALLATION

- A. Install sealant in accordance with manufacturer's instructions.
- B. Measure joint dimensions and size materials to achieve 2:1 width/depth ratios.
- C. Install joint backing to achieve a neck dimension no greater than 1/3 of the joint width.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.

3.4 CLEANING

- A. Clean work under provisions of Section I.
- B. Clean adjacent soiled surfaces.

3.5 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of Section I.
- B. Protect sealants until cured.

END OF SECTION

SECTION 081213
STANDARD STEEL FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Non-rated and fire rated.

1.2 RELATED SECTIONS

- A. Section 081313 - Standard Steel Doors.
- B. Section 087100 - Door Hardware: Hardware, silencers, and weatherstripping.

1.3 REFERENCES

- A. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
- B. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
- C. ASTM A525M - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process [Metric].
- D. ASTM E152 - Methods of Fire Tests of Door Assemblies.
- E. DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- F. NFPA 80 - Fire Doors and Windows.
- G. NFPA 252 - Fire Tests for Door Assemblies.
- H. SDI-100 - Standard Steel Doors and Frames.
- I. UL 10B - Fire Tests of Door Assemblies.

1.4 SUBMITTALS FOR REVIEW

- A. Section 013300 - Procedures for submittals.
- B. Product Data: Indicate frame configuration and finishes.
- C. Shop Drawings: Indicate frame elevations, reinforcement, anchor types and spacings, location of cut-outs for hardware, and finish.

1.5 SUBMITTALS FOR INFORMATION

- A. Section 013300 - Procedures for submittals.
- B. Manufacturer's Installation Instructions: Indicate special installation instructions.
- C. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

- A. Conform to requirements of SDI-100, ANSI A117.1. And maintain one copy of each document on site.
- B. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three 3 years documented experience.

1.7 REGULATORY REQUIREMENTS

- A. Fire Rated Frame Construction: Conform to ASTM E152.
- B. Installed Frame Assembly: Conform to NFPA 80 for fire rated class same as fire door.

1.8 DELIVERY, STORAGE, AND PROTECTION

- A. Section 016600 - Material and Equipment: Transport, handle, store, and protect products.
- B. Accept frames on site in manufacturer's packaging. Inspect for damage.

1.9 PROJECT CONDITIONS

- A. Section 013100- Coordination and Meetings.
- B. Coordinate the work with frame opening construction, door, and hardware installation.
- C. Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

PART 2 PRODUCTS

2.1 FRAME MANUFACTURERS

- A. AMWELD
- B. CECO
- C. Or Equal.

2.2 FRAMES

- A. Exterior Frames:
 - 1. 14 gage thick, base metal thickness.
- B. Interior Frames:
 - 1. 14 gage thick, base metal thickness.

2.3 ACCESSORIES

- A. Bituminous Coating: Fibered asphalt emulsion.
- B. Primer: Zinc chromate type.
- C. Silencers: Resilient rubber fitted into drilled hole.
- D. Weatherstripping: Resilient rubber set in aluminum] frame.

2.4 FABRICATION

- A. Fabricate frames as welded unit. Mitered joints shall be continuously arc welded across the entire cross section of the joint, and ground to smooth finish.
- B. Shall be equipped with one welded-in floor anchor in each jamb. Provide at least three (3) field inserted steel lock anchors (to be spaced not more than 24" o.c.). Use masonry T-anchor at block walls.

- C. Fabricate frames with hardware reinforcement plates welded in place. Provide mortar guard boxes.
- D. Reinforce frames wider than 48 inches with roll formed steel channels fitted tightly into frame head, flush with top.
- E. On Interior Non-Rated Frames Terminate door stops 6 inches above finished floor. Cut stop at 45-degree angle and close.
- F. Prepare frames for silencers. Provide three single silencers for single doors on strike side. Provide two single silencers on frame head at double doors without mullions.
- G. Configure exterior frames with special profile to receive recessed weatherstripping.
- H. Attach fire rated label to each fire rated door unit.
- I. Fabricate frames to suit masonry wall coursing with 4 inch head member.

2.5 FINISH

- A. Exterior Units: 1.25 oz /sq.ft., hot dipped galvanized.
- B. Interior Units: 0.60 oz / sq. ft., hot dipped galvanized.
- C. Primer: Baked.
- D. Coat inside of frame profile with bituminous coating to a thickness of 1/16 inch.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 013100 - Coordination and Meetings: Verification of existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.

3.2 INSTALLATION

- A. Install frames in accordance with SDI-100 and DHI.
- B. Coordinate with masonry and gypsum board wall construction for anchor placement.
- C. Coordinate installation of frames with installation of hardware specified in Section 087100 and doors in Section 081313.
- D. Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.

3.3 ERECTION TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 inch measured with straight edges, crossed corner to corner.

END OF SECTION 081213

SECTION 081416

FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Interior flush wood doors.
 - 2. Fire rated wood doors.

- B. Related Requirements:
 - 1. Section 081313: Standard Steel Frames
 - 2. Section 087100: Door Hardware
 - 3. Section 099000: Painting

1.2 MEETINGS

- A. Conduct pre-installation meeting at Project site.

- B. Discussion Topics:
 - 1. Delivery, storage, and handling.
 - 2. Coordination with hardware and access control installers.
 - 3. Protection of installed doors.

1.3 ACTION SUBMITTALS

- A. Product Data: Each type of door and finish.
 - 1. Core and edge construction.
 - 2. Fire rated doors.
 - 3. Glazed openings.
 - 4. Finishes.

- B. Shop Drawings and Schedule:
 - 1. Use same unit designations used in Contract Documents.
 - 2. Hardware and wiring chase preparation.
 - 3. Glazed openings.

- C. Samples for Selection:
 - 1. Available standard stain and gloss options. Submit samples in the form of actual materials; printed brochures are not acceptable.

2. Available molding profiles for glazed openings.
- D. Samples for Verification:
1. Each required veneer species and factory finish; corner unit showing construction and finish minimum 8 by 10 inches.
 2. Light Opening Moldings: Minimum 6 inches long, for each material, type, and finish required.
- E. Maintenance data.
- F. Manufacturer warranties transferrable to Owner.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Package factory-finished doors individually in manufacturer's standard plastic bags, stretch wrap, or cardboard cartons.
- B. Store doors inside building in clean, dry location.
- C. Mark each door on top bottom rail with opening number used on Shop Drawings.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weather tight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity at occupancy levels during remainder of construction period.

1.6 MANUFACTURER WARRANTIES

- A. Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch (6 mm) in 42-by-84-inch (1065-by-2130-mm) section.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in 3-inch (0.25 mm in 76-mm) span.
 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
- B. Warranty Periods:
 1. Solid-Core Interior Doors: Life of installation.
 2. Interior Stile and Rail Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Masonite
 - 1. Basis of Design: Products of Aspiro™ Series | Marshfield-Algoma by Masonite Architectural are specified to indicate requirements for quality and appearance.
- B. Oshkosh Door Company
- C. Or Equal
- D. Source Control: Supply all wood doors from a single manufacturer.

2.2 MANUFACTURING STANDARDS

- A. Interior Flush Wood Doors: Window & Door Manufacturers Association publication ANSI/WDMA I.S. 1A "Industry Standard for Interior Architectural Wood Flush Doors".
- B. Interior Stile and Rail Wood Doors: Window & Door Manufacturers Association publication ANSI/WDMA I.S. 6A "Industry Standard for Interior Architectural Wood Stile and Rail Doors".
- C. Fire-Rated Wood Doors: Conforming to NFPA 80; listed and labeled for required ratings based on testing at positive pressure NFPA 252 or UL 10C by UL or other testing agency acceptable to authorities having jurisdiction
 - 1. Blocking: Provide composite blocking approved for use in doors of fire-protection ratings indicated as needed to maintain WDMA performance level and eliminate through-bolting hardware.
 - 2. Vertical Edge Construction:
 - a. Category A Positive Pressure: Integral intumescent seals concealed by outer stile
Specifier Note:
- D. Certified Wood: FSC Pure per FSC STD-01-001 and FSC STD-40-004.
- E. Adhesives: Meeting testing and product requirements of California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- F. Composite Wood Products: Manufactured with ultra-low-emitting formaldehyde resins as defined in California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or with no added formaldehyde.

2.3 INTERIOR SOLID CORE FLUSH WOOD DOORS FOR TRANSPARENT FINISH – SELECT WOOD VENEER

- A. Basis of Design: Aspiro™ Series | Marshfield-Algoma™ by Masonite Architectural.
- B. Solid Core Select Wood Veneer Flush Doors:
 - 1. WDMA Quality grade: Premium.

2. WDMA Performance Level: Heavy Duty.
 3. Faces:
 - a. Veneer Grade: AA.
 - b. Veneer Species: White Maple.
 - c. Veneer Cut: Rotary cut.
 - d. Veneer Leaf Match: Book match.
 - e. Veneer Face Match/Assembly: Balance.
 4. Pair Match: Provide for doors hung in same opening.
 5. Vertical Edges: Structural composite lumber.
 6. Horizontal Edges: Structural composite lumber.
 7. Core: Wood-based Particleboard (PC).
 8. Construction: Five Plies; stiles and rails bonded to core, and entire unit is abrasive planed before veneering.
 9. Thickness: 1-3/4 inch.
- C. Solid Core Select Wood Veneer Flush Doors with Glazed Lites
1. Match appearance grade and applicable construction and performance requirements of other standard veneer flush solid core wood doors.
 2. Factory Glazing: Factory install tempered glass. Fill glazing bead nail holes in factory finished doors.
 3. Metal Glazing Frames: Manufacturer's standard frame formed of 0.048-inch- (1.2-mm-thick, cold-rolled steel sheet; factory primed for paint.
- D. Fire-Rated Select Wood Veneer Flush Doors:
1. Match appearance grade and applicable construction and performance requirements of non-rated transparent finish flush wood doors.
 2. Ratings: Category A positive pressure.
 3. Core:
 - a. 90-Minute Doors: Mineral core with blocking options.
 4. Vertical Edges:
 - a. Core Doors: Veneer edge-band over fire stile.
 - b. 45-, 60-, 90-Minute Doors: Manufactures standard construction per label service listing. [Clean edge-Bond smooth PVC edge band to structural composite lumber (top), (bottom), (top & bottom).] [Veneer edge band-top rail only].
- E. Fire-Rated Select Wood Veneer Flush Doors with Glazed Lites:
1. Match appearance grade and applicable construction and performance requirements of non-rated transparent finish flush wood doors.
 2. Factory Glazing: Factory install tempered glass. Fill glazing bead nail holes in factory finished doors.
 3. Glazing: Factory-installed fire-rated safety glass for door rating.

4. Metal Glazing Frames: Manufacturer's standard frame formed of 0.048-inch- (1.2-mm-) thick, cold-rolled steel sheet; factory primed for paint; and approved for use in doors of fire-protection rating indicated.
5. WDMA Quality grade Premium.

2.4 DOOR CORE MATERIALS

- A. Particleboard: Wood-based particleboard; ANSI A208.4, Grade LD-2 as required to meet WDMA Performance Duty level specified without added blocking.
- B. Structural Composite Lumber: WDMA T.M.10.

2.5 FABRICATION

- A. Door Pairs:
 1. Veneer Matching: Running match.
- B. Factory Fitting: Fit to frame openings with clearances specified in WDMA I.S. 1A.
 1. Undercut: Maximum 3/8 inch (10 mm) above thresholds.
 2. Fire-Rated Doors: Comply with NFPA 80.
- C. Factory Machining: Machine doors for hardware that is not surface applied.
 1. Verify dimensions for hardware mortises in metal frames before machining.
- D. Openings:
 1. Cut and trim openings and install glazing at factory.
 2. Cut openings and install louvers at factory.

2.6 FINISHES

- A. Finish Grade: Match grade of door.
- B. Transparent: WDMA TR-8, UV-Cured Acrylated Polyester/Urethane.
 1. Staining: Standard color selected by Architect
 2. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that door frames are plumb, square, and accurate size.
- B. Inspect each door before installation for damage and defects per WDMA Section F-6.

3.2 INSTALLATION

- A. Hardware installation is conforming to Section 08 7100 – Door Hardware.
- B. Reference Standards:
 - 1. Wood Doors: WDMA I.S. 1A
 - 2. Fire-Rated Doors: NFPA 80.
 - 3. Smoke-and Draft-Control Doors: NFPA 105.
- C. Align doors with uniform vertical and top edge clearance.

3.3 REPAIR

- A. Repair of damage or defects is subject to Architect's acceptance, including removal of soiling. Provide new replacement doors for doors that cannot be satisfactorily repaired.

3.4 PROTECTING AND CLEANING

- A. Protect installed doors from damage and soiling.
- B. Clean doors shortly before inspection for Substantial Completion.

END OF SECTION 081416

SECTION 087100

DOOR HARDWARE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Hardware for wood, hollow steel and aluminum doors.
- B. Thresholds.
- C. Weatherstripping, seals and door gaskets

1.2 SCOPE OF WORK

- A. Scope of Work: This supplier shall furnish to the General Contractor all finishing hardware as hereinafter specified or as obviously required to complete this project. Items not specifically mentioned but necessary to complete the work shall be furnished, matching in quality and finish the items hereinafter specified or described. Should an opening be omitted, this supplier shall provide finish hardware equal to that specified for similar or adjacent openings and as approved by the Architects for function and quality. No extras will be allowed for omitted but required items. Clarify all questions with the Architects, in writing, prior to the Bid Opening.

1.3 RELATED SECTIONS

- A. Section 081213 - Standard Steel Frames.
- B. Section 081416 - Flush Wood Doors.
- C. Section 084113 - Aluminum Entrances and Storefronts.

1.4 REFERENCES

- A. AWI (Architectural Woodwork Institute) - Architectural Woodwork Quality Standards.
- B. BHMA (Builders Hardware Manufacturers Association) - A156 series.
- C. DHI (Door and Hardware Institute) - A115 series.
- D. DHI (Door and Hardware Institute) - WDHS.3 - Architectural Hardware for Wood Flush Doors.
- E. NFPA 80 - Fire Doors and Windows.
- F. NFPA 101 - Life Safety Code.
- G. NFPA 252 - Fire Tests of Door Assemblies.
- H. UL 10B - Safety Fire Tests of Door Assemblies.
- E. UL 305 - Safety Panic Hardware.
- J. American Disabilities Act

1.5 SUBMITTALS FOR REVIEW

- A. Section 013300 - Procedures for Submittals.
- B. Shop Drawings:
 - 1. Indicate locations and mounting heights of each type of hardware, schedules, catalog cuts, electrical characteristics and connection requirements, all hands of doors, finishes and any other pertinent data.
 - 2. Submit manufacturer's parts lists, and templates.
 - 3. A rejection of the samples or of the hardware schedule shall constitute a rejection of the hardware supplier.
- C. Samples:
 - 1. Submit 1 sample of hinge, latchset, lockset, and closer illustrating style, color, and finish.
 - 2. Samples will be returned to supplier.

1.6 SUBMITTALS FOR INFORMATION

- A. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention.

1.7 SUBMITTALS AT PROJECT CLOSEOUT

- A. Section 017700 - Contract Closeout: Procedures for submittals.
- B. Project Record Documents: Record actual locations of installed cylinders and their master key code.
- C. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- D. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.8 QUALITY ASSURANCE

- A. Perform Work in accordance with the following requirements:
 - 1. AWI.
 - 2. BHMA A156 series.
 - 3. DHI - A115 series.
 - 4. DHI - WDHS.3.
 - 5. NFPA 80.
 - 6. NFPA 101.
 - 7. NFPA 252.
 - 8. UL 10B.

9. UL 305.
 10. Maintain one copy on site.
- B. **Manufacturer Qualifications:** Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.
 - C. **Hardware Supplier Qualifications:** Company specializing in supplying commercial or institutional door hardware with 5 years documented experience and approved by manufacturers.
 - D. **Hardware Supplier Personnel:** Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section. This Hardware Technician shall be a registered Architectural Hardware Consultant (AHC), nationally registered with the Door and Hardware Institute (DHI) and his / her DHI identification number will be indicated on all documents presented by him / her.

1.9 REGULATORY REQUIREMENTS

- A. **Products Requiring Electrical Connection:** Listed and classified by Underwriters' Laboratories, Inc., as suitable for the purpose specified and indicated.

1.10 DELIVERY, STORAGE, AND PROTECTION

- A. **Section 016600 - Material and Equipment:** Transport, handle, store, and protect products.
- B. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.11 PROJECT CONDITIONS

- A. **Section 013100- Coordination and Meetings.**
- B. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware and recessed items.
- C. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.
- D. Coordinate Owner's keying requirements during the course of the Work.

1.12 WARRANTY

- A. **Section 017700 - Contract Closeout.**
- B. Provide five (5) year manufacturer warranty for door closers and locksets.

1.13 MAINTENANCE PRODUCTS

- A. **Section 017700 - Contract Closeout.**
- B. Provide special wrenches and tools applicable to each different or special hardware component.
- C. Provide maintenance tools and accessories supplied by hardware component manufacturer.

1.14 EXTRA MATERIALS

- A. Section 017700 - Contract Closeout.
- B. Provide two (2) extra key lock cylinders for each master keyed group.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. See hardware schedule at end of this section.

2.2 ADDITIONAL PRODUCTS

- A. Wall Bumpers / Door Stops: Provide **#440** where an item of hardware, or a door, may contact any part of the building structure. Where the use of a Wall Bumper is impractical, a Floor or Wall type stop **#410** shall be provided. All doors which swing less than 135 degrees and are equipped with door closers shall be provided with the proper type of Stop or Bumper.
- B. Roller Bumpers: Provide **#455** or **#456** as required where one door may contact another.
- C. Door Mutes: Provide **#608 as** required by frame material for all doors except the outswinging exterior doors and AA@ labeled doors. Provide three (3) for each single opening and four (4) for each double opening.
- D. Flush Bolts / Dust Proof Strikes: Provide for the top and bottom of the inactive leaf of each pair of doors specified to have a deadlock, lockset or latchet on the active leaf, Flush Bolts **#555**. Bottom rod to be sufficient length to locate center of top rod lever approximately 7' from the finished floor. Where used on double acting doors, provide bolts with convex faces. Dust Proof Strike **#571** for bottom bolt.
- E. Combination Flush Bolts: Provide **#1895** or **#1945** for all pairs of AA@, AB@, or AC@ label doors not specified to have panic devices. Provide Dust Proof Strike **#571** for the bottom bolts.
- F. Co-Ordinators: Provide **#1600** for all pairs of AA@, AB@ or AC@ label doors.
- G. Kick Plates: Provide kick plates for the push side of all doors specified to have door closers and / or self-closing hinge. All Kick Plates are to be 12" high and shall extend the width of the door less 2". All Kick Plates to be 16 gauge.
- H. Armor Plates: All Armor Plates shall be 40" high and shall extend the width of the door less 2". All Armor Plates are to be 16 gauge. Provide Armor Plates for the push side of the door.
- I. Butt Hinges: Provide one (1) pair of butts for all doors up to 5' high; all doors over 5' high and up to 7' high are to have one and one half (1 1/2) pairs of Butts; all doors over 7' high and all Dutch Doors are to have two (2) pairs of Butts. Butts for 1 3/4" thick doors up to 36" wide shall have a pin height of 4 1/2"; doors over 36" wide and up to 40" wide shall have a pin height of 5". All doors over 40" wide shall have butts with a pin height of 6". The width of the Butts shall be determined by the trim conditions affecting the throw. Butts for all outswinging exterior doors are to have non-removable pins (NRP).
- J. Door Closers: All Door Closers shall be the product of one manufacturer throughout for both interior and exterior doors. All Door Closers to have non-ferrous covers minimum .050-2" maximum projection. Arms to be forged steel closers to have separate valve adjustment from back check, closing cycle and latching cycle. Closers for all doors to

have adjustable spring to increase spring power 50% plus reversible foot to boost latching power. Closer bodies must be high strength cast iron. Door Closers shall be provided with suitable brackets, adapter plates, door plates and filler blocks for the outswinging exterior doors and special condition. Door Closers must have passed a ten million cycle independent laboratory test and 100-hour salt spray test. Door Closers to be attached to doors by sex nuts and bolts (SNB).

- K. Continuous Hinges: Must run the full height of the door.
- L. Thresholds: 2005AV for outswinging exterior hollow metal doors: 114A X 66A for inswinging exterior hollow metal doors.
- M. Weatherstripping: 305CR for all exterior hollow metal doors.
- N. Astragals: 305CN (per pair of doors) for pairs of all doors except aluminum doors.
- O. Glass Bead Kits Furnish glass bead conversion kits for exit devices on doors with raised glass beads, as required.

2.3 KEYING

- A. Door Locks: Master keyed, coordinate with owner.
- B. Exterior door cylinders are to be high security. The building Master Key will operate both the exterior high security cylinders and the conventional cylinders.
- C. Supply keys in the following quantities:
 - 1. 2 - master keys.
 - 2. 2 - change keys for each lock.

2.4 TEMPLATE HARDWARE

- A. All items of hardware to be fastened to metal or to pre-finished or pre-machined doors and / or frames shall be furnished to template.
- B. Templates and approved hardware schedules shall be furnished to the respective door and frame suppliers by the hardware supplier thru the General Contractor.
- C. The hardware supplier shall include in his submitted hardware schedules, pages entitled template information which shall include a listing of all templates necessary for the hollow metal preparation. This page shall include hardware item, manufacturer's name and stock or catalog number, gauge of metal in the case of butt hinges and manufacturer's template or drawing number.
- D. In the event hardware preparation is necessary for aluminum doors, plastic clad doors or pre-machined doors, separate hardware templates are to be supplied for each of these other fabricators and shall contain generally the information listed above as might be pertinent to the cut out work required for each respective fabricator.

2.5 FINISHES

- A. Dull chrome-US26D; Stainless Steel-US32D Aluminum-US28.
- B. Continuous gear hinges-natural aluminum.
- C. Butts-Stainless Steel on exterior doors; Dull Chrome on interior doors.

- D. Panic (exit) devices -Stainless Steel, Dull Chrome or Aluminum are acceptable. In all cases touch pads must be Stainless Steel. Outside trim is by others.
- E. Locksets, Push and Pulls, Kick and Armor Plates - Stainless Steel.
- F. Door Closers - Powder Coated Aluminum.
- G. Balance of Hardware - Dull Chrome.

PART 2 EXECUTION

3.1 EXAMINATION

- A. Section 013100 - Coordination and Meetings: Verification of existing conditions before starting work.
- B. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings.
- C. Verify that electric power is available to power operated devices and is of the correct characteristics.

3.2 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions.
- B. Use templates provided by hardware item manufacturer.
- C. Mounting heights for hardware from finished floor to center line of hardware item:
 - 1. Store Door Thumb Piece - 39"
 - 2. Door Pull Grip - 42"
 - 3. Push Plate - 40 >
 - 4. Door Knob - 38 >
 - 5. Cylinder Deadlock - 46 >
 - 6. Push and Pull Bars (1) - 45"
 - 7. Push and Pull Bars (2) - 42"
 - 8. Push and Pull Bars (3) - 45"
 - 9. Hospital Roller Latches - 38"
 - 10. Hospital Arm Pulls - 45"
 - 11. Panic Devices - 38"
 - 12. Location of Butt Hinges: Bottom hinge from the finish floor to the bottom of the hinge is 10" - Top hinge from head rabet to the top of the hinge - 5" - Center hinges is the equal distance between the top and the bottom hinges.
 - 13. These dimensions are a general guide in the absence of other specification.

3.3 FIELD QUALITY CONTROL

- A. Section 016600 - Quality Control: Field inspection, testing, and adjusting.
- B. Architectural Hardware Consultant will inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's

instructions and as specified.

1. This Technician shall operate out of a stocking builders hardware warehouse located within one hundred (100) land miles of the jobsite in order to insure immediate servicing of the project.
2. This Supplier shall make five (5) scheduled visits to the jobsite during the application of the finish hardware. Prior to each visit, he shall notify the General Contractor and the Architects, in writing, of his intention to visit the job so that either or both parties may have a representative on the job to discuss any hardware problems that might need to be discussed. In addition, this supplier shall immediately service the job upon the call of the General Contractor and / or Architects.
3. Upon completion of the job and prior to the final construction inspection, this Supplier shall lubricate and adjust all hardware according to the manufacturers' recommendations. These service requirements shall be demanded and strictly enforced by the Architects.

3.4 ADJUSTING

- A. Section 017700 - Contract Closeout: Adjusting installed work.
- B. Adjust hardware for smooth operation.
 1. Upon completion of the project, and prior to occupancy by the owner, this Supplier must inspect all the hardware for proper installation. Any improper installation must be pointed out, in writing, to the General Contractor and proper instructions given on site to the installers as to the proper installation.
 2. In addition, prior to occupancy, this supplier must adjust all door closers to ADA 4.13.10 and 4.13.11 to meet opening force and closing time parameters. Opening force measurements must be made with an industry acceptable door pressure gauge.
 3. Upon completing the door closer adjustments, this Supplier, must furnish the owner a Notarized Statement that all door closer adjustments have been made that satisfy the ADA requirements.

3.5 PROTECTION OF FINISHED WORK

- A. Section 017700 - Contract Closeout: Protecting installed work.
- B. Do not permit adjacent work to damage hardware or finish.

3.6 PROJECT CLOSE OUT

- A. This supplier shall furnish to the Owner two loose leaf bound catalogs containing the following:
 1. Finish Hardware Schedule with keying displayed for each cylinder.
 2. Catalog Cut Sheets and Parts Lists for locksets, deadlocks, exit devices, door closers and cylinders.
 3. Special wrenches, tools, etc. for hardware items.

DOOR SCHEDULE (SEE SHEET A630 FOR DOOR TYPES):

Hardware Set 1 Single - Alum. SF System

Mark 12

Each to receive the following:

1 Rim / Mortise Cylinder as Required	1109 or 1153	626 Accentra
--------------------------------------	--------------	--------------

Remaining hardware by aluminum storefront supplier

Power Supply & Card Reader by Access
Control Contractor

Hardware Set 2 Double - Alum. SF System

Mark 13

Each to receive the following:

2 Rim / Mortise Cylinder as Required	1109 or 1153	626 Accentra
--------------------------------------	--------------	--------------

Remaining hardware by aluminum storefront supplier

Power Supply & Card Reader by Access
Control Contractor

Hardware Set 3

Mark 9

Mark 11

Each to receive the following:

3 Standard Weight Butt Hinges	TA2714 (4.5"x4.5")	626 Mckinney
1 Storeroom Function Lever Lock	AU5405LN	626 Accentra
1 Electric Strike	1006	630 HES
1 Smart Pac	2005M3	HES
1 Wiring Harness	QC-1500P	Mckinney
1 Door Closer	3301BF	689 Accentra
3 Door Silencers	608	Gray Rockwood

Power Supply & Card Reader by Access
Control Contractor

Hardware Set 4

Mark 6

Each to receive the following:

3 Standard Weight Butt Hinges	TA2714 (4.5"x4.5")	626 Mckinney
1 Storeroom Function Lever Lock	AU5405LN	626 Accentra
1 Electric Strike	4500C	630 HES
1 Smart Pac	2005M3	HES
1 Wiring Harness	QC-1500P	Mckinney
1 Door Closer	3301BF	689 Accentra
3 Door Silencers	608	Gray Rockwood

Power Supply & Card Reader by Access
Control Contractor

Hardware Set 5

Mark 7

Each to receive the following:

3 Standard Weight Butt Hinges	TA2714 (4.5"x4.5")	626 Mckinney
1 Passage Function Lever Lock	AU5401LN	626 Accentra
1 Door Closer	3301BF	689 Accentra
1 Magnetic Hold Open	997M	689 Rixson
1 Kick Plate	K1050 (10"x34")	630 Rockwood
1 Gasketing	S88BL	Black Rockwood

Hardware Set 6

Mark 5

Each to receive the following:

3 Standard Weight Butt Hinges	TA2714 (4.5"x4.5")	626 Mckinney
1 Storeroom Function Lever Lock	AU5405LN	626 Accentra
1 Door Closer	3301BF	689 Accentra
1 Threshold	271A	MIL Pemko
3 Door Silencers	608	Gray Rockwood

Hardware Set 7

Mark 2

Mark 4

Mark 10

Each to receive the following:

3 Standard Weight Butt Hinges	TA2714 (4.5"x4.5")	626 Mckinney
1 Privacy Function Lever Lock	AU5402LN	626 Accentra
1 Door Closer	3301BF	689 Accentra
1 Kick Plate	K1050 (10"x34")	630 Rockwood
3 Door Silencers	608	Gray Rockwood

Hardware Set 8

Mark 3

Each to receive the following:

3 Standard Weight Butt Hinges	TA2714 (4.5"x4.5")	626 Mckinney
1 Entrance Function Lever Lock	AU5407LN	626 Accentra
1 Door Closer	3301BF	689 Accentra
1 Kick Plate	K1050 (10"x34")	630 Rockwood
3 Door Silencers	608	Gray Rockwood

Hardware Set 9

Mark 1

3 Standard Weight Butt Hinges	TA2714 (4.5"x4.5")	626 Mckinney
1 Passage Function Lever Lock	AU5407LN	626 Accentra
1 Kick Plate	K1050 (10"x34")	630 Rockwood
1 Floor or Wall Stop	442 / 409	626 Rockwood
3 Door Silencers	608	Gray Rockwood

END OF SECTION 087100

SECTION 092116

GYPSUM BOARD SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Gypsum board and joint treatment.
- B. Interior Metal Stud Wall Framing.

1.2 RELATED SECTIONS

- A. Section 061000 - Wood Blocking and Curbing.
- B. Section 072116 - Batt Insulation: Acoustic and Thermal insulation.

1.3 REFERENCES

- A. ASTM C36 - Standard Specification for Gypsum Wallboard.
- B. ASTM C79 - Standard Specification for Gypsum Sheathing Board.
- C. ASTM C475 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- D. ASTM C645 - Standard Specification for Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board.
- E. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board.
- F. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
- G. ASTM C1002 - Standard Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases.
- H. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions.
- I. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- J. GA-201 - Using Gypsum Board for Walls and Ceilings.
- K. GA-214 - Recommended Specification: Levels of Gypsum Board Finish.
- L. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.
- M. GA-600 - Fire Resistance Design Manual.
- N. UL - Fire Resistance Directory.
- O. WH (Warnock Hersey) - Certification Listings.

1.4 SYSTEM DESCRIPTION

- A. Exterior Wall: Metal stud framing system infill, with exterior vapor barrier and sheathing, friction fit batt insulation, 5/8" CD-X plywood, and 5/8" mold resistant interior gypsum board.
- B. Exterior Wall Dead and Live Loads: Design and size components to withstand exterior and applicable interior pressures as defined by the American Society of Civil Engineers standard, *Minimum Design Loads for Buildings and Other Structures*, (ANSI / ASCE 7-05). Basic wind velocity shall be 150 mph, importance factor I shall be 1.15, and the Exposure shall be C. Load calculations and drawings shall be submitted and stamped by a Louisiana Licensed Structural Engineer.
- C. Interior Walls: Metal stud framing system with friction fit batt type acoustic insulation as specified, 5/8" interior High abuse (alternate No. 2), and Type X gypsum board,
- D. Maximum Allowable Deflection: 1:360 span.
- E. Wall System:
 - 1. Design to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
 - 2. Design system to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

1.5 SUBMITTALS FOR REVIEW

- A. Section 013300 - Procedures for submittals.
- B. Shop Drawings:
 - 1. Indicate component details, stud layout, framed openings, anchorage to structure, type and location of fasteners, and accessories or items required of other related work.
 - 2. Describe method for securing studs to tracks, splicing, and for blocking and reinforcement to framing connections.
- C. Product Data: Provide data describing standard framing member materials and finish, product criteria, load charts, and limitations.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C754, and ML/SFA 540. Maintain one copy on site.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum Five (5) years documented experience and approved by manufacturer.
- C. Design structural elements under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Louisiana.
- D. Form, fabricate, install, and connect components in accordance with ML/SFA 540.

1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire rated assemblies.

PART 2 PRODUCTS

2.1 MANUFACTURERS - GYPSUM BOARD SYSTEM

- A. National Gypsum.
- B. United States Gypsum.
- C. Dale - Incor.
- D. Substitutions: Section 016600 - Substitute Material and Equipment of Equal Items

2.2 STUD FRAMING MATERIALS

- A. Studs: ASTM C645; non-load bearing rolled steel, channel shaped, punched for utility access, as follows:
 - 1. Interior Studs: 4 or 6 inch depth, 18 gauge as indicated on drawings.
- B. Tracks and Headers: Same material and thickness as studs, bent leg retainer notched to receive studs with provision for crimp locking to stud. Ceiling Runners: With extended leg retainer.
- C. Furring and Bracing Members: Of same material as studs; thickness to suit purpose.
- D. Fasteners: ASTM C1002, self-drilling, self-tapping screws.
- E. Anchorage to Substrate: Screws, welding and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- F. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20 Type I Inorganic zinc rich.

2.3 STUD FRAMING FINISHES

- A. Interior Studs: Galvanize to G60 coating class.
- B. Tracks and Headers: Galvanize to G90 coating class.
- C. Accessories: Same finish as framing members.

2.4 GYPSUM BOARD MATERIALS

- A. Fire Rated Gypsum Board: ASTM C36; fire resistive type, UL or WH rated; 5/8 inch thick, maximum available length in place; ends square cut, tapered and beveled edges.
- B. High Abuse Gypsum Board: 5/8" thick as indicated in drawings (alternate).
- C. Use Drywell Suspension system for gypsum board ceilings.

2.5 ACCESSORIES

- A. Acoustic Insulation: See Section 072116.
- B. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
- C. Corner Beads: Metal.

- D. Edge Trim: GA-201 and GA-216; Type L bead.
- E. Joint Materials: ASTM C475; reinforcing tape, joint compound, adhesive, and water.
- F. Screws: ASTM C 954 or ASTM C1002, or both, with heads, threads, points and finish as recommended by the manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 013100 - Coordination and Meetings: Verification of existing conditions before starting work.
- B. Verify that site conditions are ready to receive work and opening dimensions are as indicated on shop drawings.
- C. Verify that rough-in utilities are in proper location.

3.2 METAL STUD INSTALLATION

- A. Install studs in accordance with ASTM C754, and/or manufacturer's instructions.
- B. Align and secure top and bottom runners as required to meet Engineered calculations.
- C. Place two 2 beads of acoustic sealant between runners and substrate, studs and adjacent construction to achieve a vapor seal and an acoustic seal.
- D. Place two beads of acoustic sealant between studs and adjacent vertical surfaces to achieve an air seal and acoustic seal.
- E. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.
- F. Install studs vertically at 16 inches o.c. at interior walls. This will occur even if load calculations indicate otherwise.
- G. Align stud web openings horizontally.
- H. Secure studs to tracks using fastener method. Do not weld.
- I. Stud splicing not permissible.
- J. Fabricate corners using a minimum of three studs.
- K. Double stud at wall openings, door and window jambs, not more than 2 inches (50 mm) from each side of openings.
- L. Brace stud framing system rigid.
- M. Coordinate erection of studs with requirements of door frames; install supports and attachments.
- N. Coordinate installation of wood bucks, anchors, and wood blocking with electrical and mechanical work to be placed within or behind stud framing.

- O. Blocking: Secure steel channels to studs.

- P. Refer to Drawings for indication of partitions extending to finished ceiling only and for partitions extending through the ceiling to the structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Provide extended leg ceiling runners.

- Q. Coordinate placement of insulation in stud spaces after stud frame erection.

3.3 ERECTION TOLERANCES

- A. Section 016600 - Quality Control: Tolerances.

- B. Maximum Variation from True Position: 1/8 inch in 10 feet.

- C. Maximum Variation from Plumb: 1/8 inch in 10 feet.

3.4 WALL FURRING INSTALLATION

- A. Erect wall furring for direct attachment to concrete masonry and stud walls.

- B. Erect furring channels horizontally; space maximum 24 inches o.c., not more than 4 inches from floor and ceiling lines. Secure in place on channel flanges at maximum 24 inches on center.

3.5 CEILING FRAMING INSTALLATION

- A. Install in accordance with ASTM C754 and manufacturer's instructions.

- B. Coordinate location of hangers with other work.

- C. Install ceiling framing independent of walls, columns, and above ceiling work.

- D. Reinforce openings in ceiling suspension system which interrupt main carrying channels or furring channels, with lateral channel bracing. Extend bracing minimum 24 inches past each end of openings.

- E. Laterally brace entire suspension system.

3.6 ACOUSTIC ACCESSORIES INSTALLATION

- A. Place acoustic insulation in partitions tight within spaces, around cut openings, behind and around electrical and mechanical items within or behind partitions, and tight to items passing through partitions.

- B. Install acoustic sealant within partitions in accordance with manufacturer's instructions.

3.7 GYPSUM BOARD INSTALLATION

- A. Install gypsum board in accordance with manufacturer's instructions.

- B. Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.

- C. Use screws when fastening gypsum board to metal furring, framing or wood furring.

- D. Double Layer Applications: Secure second layer to first with fasteners.
- E. Place second layer parallel to first layer. Offset joints of second layer from joints of first layer.
- F. Erect exterior gypsum soffit board perpendicular to supports, with staggered end joints over supports.
- G. Place control joints consistent with lines of building spaces as directed.
- H. Place corner beads at all external corners. Use longest practical length. Place L-Bead edge trim where gypsum board abuts dissimilar materials and caulk after finishing.

3.8 JOINT TREATMENT

- A. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
- B. Feather coats on to adjoining surfaces so that camber is maximum 1/32 inch.
- C. Finish panels to levels indicated below and according to ASTM C 840.
 - 1. Level 1: At concealed areas
 - 2. Level 4: At all panel surfaces that will be exposed to view.
- D. Tape, and float screws and joints above ceilings.

3.9 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION 092116

SECTION 093213

WALL TILE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Porcelain tile wall, and base finish using the mortar bed application method.

1.2 RELATED SECTIONS

- A. Section 079100 - Joint Sealers: Mildew resistant sealant.
- B. Section 093216 - Floor Tile.
- C. Section 220000 - Plumbing Fixtures

1.3 REFERENCES

- A. ANSI A108.1 - Installation of Porcelain Tile with Portland Cement Mortar.
- B. ANSI A108.10 - Installation of Grout in Tilework.
- C. ANSI A118.4 - Latex-Portland Cement Mortar.
- D. ANSI A118.6 - Porcelain Tile Grouts.
- E. ANSI A137.1 - Standard Specifications for Porcelain Tile.
- F. ASTM C847 - Metal Lath.
- G. TCA (Tile Council of America) - Handbook for Porcelain Tile Installation.

1.4 SUBMITTALS

- A. Submit under provisions of Section 013300 - Procedures for submittals.
- B. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, and setting details.
- C. Product Data: Provide instructions for using grouts.
- D. Samples: Mount tile and apply grout on two plywood panels, 48 X 48 inch in size illustrating pattern, color variations, and grout joint size variations.
- E. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements or ANSI A137.1.

1.5 MAINTENANCE DATA

- A. Submit under provisions of Section 017700.
- B. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ANSI A137.1.
- B. Conform to TCA Handbook, and ANSI A108.
- C. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- B. Installer: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by manufacturer.

1.8 MOCKUP

- A. Provide mockup of tile under provisions of Section 016600.
- B. Construct mockup, 4 feet long by 4 feet wide, with finish grout, and specified accessories.
- C. Locate where directed.
- D. Mockups may remain as part of the Work if accepted by Architect.

1.9 PRE-INSTALLATION CONFERENCE

- A. Convene one (1) week prior to commencing work of this section, under provisions of Section 016600.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 016600.
- B. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.11 ENVIRONMENTAL REQUIREMENTS

- A. Do not install adhesives in an unventilated environment.
- B. Maintain 50 degrees F during installation of mortar materials.

1.12 EXTRA MATERIALS

- A. Furnish under provisions of Section 016600.
- B. Provide 50 sq. ft. of each size, color, and surface finish of tile specified.

PART 2 PRODUCTS

2.1 TILE MANUFACTURERS

- A. Basic of Design: Dal- Tile Corporation. Santino Series Porcelain wall tile.
 - 1. Thickness: 5/16

2. Size: 12X24

B. Or prior approved equal.

2.2 PORCELAIN TILE MATERIALS

A. See Finish Schedule for locations.

2.3 MORTAR MATERIALS

A. Mortar Materials: ANSI A118.4 Latex Modified, Portland cement, sand, latex additive, and water.

2.4 GROUT MATERIALS

A. Grout: ANSI A118.6, tile grout, color as selected.

B. Color Admixture: Site mixed, type, color as selected, manufactured by Solomon Grind-Chem Services, Inc.

2.5 ACCESSORIES

A. Metal Lath: ASTM C847, Flat diamond mesh, of weight to suit application, galvanized finish.

B. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325, in maximum lengths available to minimize end-to-end butt joints.

1. Products: Subject to compliance with requirements, provide one of the following:

(1) C-Cure; C-Cure Board 990.

(2) Custom Building Products; Wonderboard.

(3) USG Corporation; DUROCK Cement Board.

2. Thickness: 5/8 inch.

3. Install matching bullnose, cove base and cove base out corners.

2.6 MORTAR MIX AND GROUT MIX

A. Mix and proportion pre-mix setting bed and grout materials in accordance with manufacturer's instructions and TCA Handbook.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate under provisions of Section 016600.

B. Verify that surfaces are ready to receive work.

3.2 PREPARATION

A. Protect surrounding work from damage or disfiguration.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

3.3 INSTALLATION - MORTAR BED METHOD

- A. Install mortar bed, tile, and grout in accordance with manufacturer's instructions and TCA Handbook Method.
- B. Install metal lath in accordance with TCA Handbook.
- C. Apply mortar bed over Concrete Masonry Unit and Metal lath surfaces to a thickness of 5/8 inch.
- D. Form internal angles coved and external angles bullnosed.
- E. Cut and fit tile tight to penetrations through tile. Ensure finish trim will cover cut tile edges. Form corners and bases neatly. Align floor, base and wall joints.
- F. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar or excess grout.
- G. Install ceramic accessories rigidly in prepared openings.
- H. Sound tile after setting. Replace hollow sounding units.
- I. Keep expansion or control joints free of mortar or grout. Apply sealant to joints.
- J. Allow tile to set for a minimum of 48 hours prior to grouting.
- K. Grout tile joints.
- L. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.4 CLEANING

- A. Clean work under provisions of 016600.
- B. Clean tile and grout surfaces.

END OF SECTION 093213

SECTION 095113

SUSPENDED ACOUSTICAL CEILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Suspended metal grid ceiling system and perimeter trim.
- B. Acoustical tile.

1.2 RELATED SECTIONS

- A. Section 072116 - Batt and Blanket Insulation.

1.3 REFERENCES

- A. ASTM C635 - Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- B. ASTM C636 - Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
- C. ASTM C665 - Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- D. ASTM E580 - Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint.
- E. ASTM E1264 - Classification of Acoustical Ceiling Products.
- F. Ceilings and Interior Systems Contractors Association (CISCA) - Acoustical Ceilings: Use and Practice.
- G. UL - Fire Resistance Directory and Building Material Directory.

1.4 SYSTEM DESCRIPTION

- A. Suspension system to rigidly secure acoustical ceiling system including integral mechanical and electrical components with maximum deflection of 1/360.

1.5 SUBMITTALS

- A. Submit under provisions of Section 013300 - Procedures for submittals.
- B. Product Data: Provide data on metal grid system components and acoustical units.
- C. Samples: Submit two samples, full size illustrating material, color and finish of acoustical units.
- D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

1.6 QUALIFICATIONS

- A. Grid Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- B. Acoustical Unit Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire rated assembly and combustibility requirements for materials.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

1.9 SEQUENCING

- A. Sequence work under the provisions of Section 016600.
- B. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- C. Install acoustical units after interior wet work is dry.

1.10 EXTRA MATERIALS

- A. Furnish under provisions of Section 016600.
- B. Provide two (2) percent of total acoustical unit area of extra tile and metal pans to Owner of each style used in work.

PART 2 PRODUCTS

2.1 MANUFACTURERS - SUSPENSION SYSTEM

- A. Armstrong: Product - 15/16" Prelude Plus
- B. Or Equal.

2.2 SUSPENSION SYSTEM MATERIALS

- A. Non-fire Rated Grid: ASTM C635, intermediate duty; exposed T; components die cut, interlocking, and double web.
- B. Grid Materials: Commercial quality cold rolled steel with galvanized coating and aluminum capped.
- C. Grid Finish: Color to match Acoustical Units.
- D. Accessories: Stabilizer bars, clips, splices, edge moldings and hold down clips required for suspended grid system.
- E. Support Channels and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.

2.3 ACOUSTICAL UNIT MATERIALS

- A. SAT- 1 Acoustical Panels: basis of design: Armstrong Fine Fissured square lay in.
 - 1. Class A: ASTM E84
 - 2. ASTM E1264 Classification Type III, Form 2, Pattern CE Fire Class A
 - 3. Wet formed mineral fiber with factory applied latex paint.
 - 4. Size: 24 X 24 X 5/8 inch.
 - 5. Surface Color: White.

- B. SAT- 2 - Acoustical Panels: basis of design: Armstrong Ceramaguard Fine Fissured square lay in.
 - 1. Class A: ASTM E84
 - 2. ASTM E1264 Classification Fire Class A
 - 3. Mold- and mildew-resistant surface, washable, soil-resistant mineral fiber 15/16 inch drop ceiling tile
 - 4. Size: 24 X 24 X 5/8 inch.
 - 5. Surface Color: White
 - 6. Surface Finish: unperforated

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions and that they are ready to receive work.
- B. Verify that layout of hangers will not interfere with other work.
- C. Beginning of installation means acceptance of existing condition.

3.2 INSTALLATION - LAY-IN GRID SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636 and manufacturer's instructions and as supplemented in this section.
- B. Install system in accordance with ASTM E580.
- C. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
- D. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.
- E. Install after major above ceiling work is complete. Coordinate the location of hangers with other work.
- F. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- G. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

- H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. [Support fixture loads by supplementary hangers located within 6 inches of each corner; or support components independently.
- I. Do not eccentrically load system, or produce rotation of runners.
- J. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions.
- K. Form expansion joints as required. Form to accommodate plus or minus 1 inch movement. Maintain visual closure.
- L. Install light fixture boxes constructed of gypsum board above light fixtures in accordance with UL assembly requirements.

3.3 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Lay directional patterned units one way with pattern parallel to longest room axis. Fit border trim neatly against abutting surfaces.
- D. Install units after above ceiling work is complete.
- E. Install acoustical units level, in uniform plane, and free from twist, warp and dents.
- F. Cut panels to fit irregular grid and perimeter edge trim. Field rabbett panel edge. Double cut and field paint exposed edges of regular units.
- G. Where bullnose concrete block corners occur, provide preformed closers to match edge molding.
- H. Lay acoustical insulation for a distance of 48 inches either side of acoustical partitions as indicated.
- I. Install hold-down clips to retain panels tight to grid system within 20 ft. of an exterior door.

3.4 ERECTION TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION 095113

SECTION 096513

RESILIENT WALL BASE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Resilient Wall Base

1.2 RELATED SECTIONS

- A. Section 092116: Gypsum Board Systems

1.3 REFERENCES

- A. ASTM F1861, Standard Specification for Resilient Wall Base, Type TV (vinyl, thermoplastic), Group 2 (solid, layered), Style A&B (Straight, Cove)
- B. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials, Class A
- C. ASTM E648 (NFPA 253), Standard Test Method for Critical Radiant Flux, Class 1, >0.45 W/cm²
- D. ASTM E662 (NFPA 258), Standard Test Method for Smoke Density, Passes, <450
- E. ASTM F137, Standard Test Method for Flexibility of Resilient Flooring Materials protocols, Passes
- F. ASTM F386, Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces, Passes
- G. ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring, Excellent
- H. ASTM F1515, Standard Test Method for Measuring Light Stability of Resilient Flooring protocols, Passes
- I. NFPA 253, Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source
- J. NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials
- K. NFPA 258, Test Method for Specific Density of Smoke Generated by Solid Materials

1.4 SUBMISSION REQUIREMENTS

- A. Product data.
- B. Technical data sheet
- C. Care & maintenance document
- D. Warranty
- E. Samples for Initial Selection
- F. Samples for Verification

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide resilient wall base materials manufactured in the United States of America by a firm with a minimum of 10 years' experience with resilient vinyl materials of type equivalent to those specified.
- B. Provide resilient wall base, flooring materials, adhesives, accessories and subfloor preparation products from one manufacturer to ensure color matching and compatibility.
- C. Manufacturer shall be capable of providing technical training and technical field service representation.
- D. Installer must be professional, licensed, insured and acceptable to manufacturer of resilient flooring materials. Project Managers or Field Supervisors must be INSTALL (International Standards & Training Alliance) certified CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association) CIM (Certified Installation Manager) for the requirements of the project or equivalent.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within the range recommended by Roppe of 65 degrees F (18degrees C) and 85 degrees F (29 degrees C).

1.7 PROJECT CONDITIONS

- A. Install resilient products after other finishing operations, including painting, have been completed.
- B. Maintain ambient temperatures within range of (\pm 10 degrees F) 65 degrees (18 degrees C) and 85 degrees F (29 degrees C) in the spaces to receive the resilient products during:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- C. Maintain relative humidity between 40% and 65% during installation.
- D. Avoid conditions in which dew point causes condensation on the installation surface.

1.8 WARRANTY

- A. Provide manufacturer's standard limited commercial warranty to cover manufacturing defects.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Roppe Corporation
- B. Tarket Johnsonite
- C. Armstrong Flooring

2.2 PRODUCTS

- A. Thermoplastic Vinyl Wall Base
 - 1. Size and Type: Roppe 4" Vinyl Cove Base, 6" on millwork

2. Color: To be selected from manufacturers full range of colors
 3. Accessories: Items needed to complete the installation:
 - a. Inside corners
 - b. Outside corners
 - c. Color-matched caulks
- B. Adhesives: Use manufacturer's recommended adhesives.

PART 3 EXECUTION

3.1 GENERAL

- A. General Contractor Responsibilities:
1. Supply a safe, climate controlled building as required by manufacturer.
 2. Ensure substrate/background meets the requirements of ASTM F1861.
 3. Provide a secure storage area that is maintained permanently or temporarily at normal operating temperature and humidity conditions between 65° F and 85° F and between 40% and 65% relative humidity, for at least 48-hours prior to and during the application of the wall base, so the contractor can acclimate the vinyl base materials per manufacturer's instructions.
 4. Provide an installation area that is weather tight and maintained either permanently or temporarily at ambient service temperature and humidity. Normal operating temperature and humidity conditions are between 65° F and 85° F and between 40% and 65% relative humidity, for at least 48-hours prior to and during the application of the wall base per the manufacturer's instructions.
 5. Ensure areas with direct prolonged exposure to sunlight are protected with protective UVA/UVB restrictive coatings or films.
 6. In areas where the walls are subject to direct sunlight through doors or windows, the doors and windows should be covered using blinds, curtains, cardboard or similar for the time of the installation and 72-hours after the installation to allow the adhesive to cure. Note: These areas should be installed using wet adhesives only.
 7. Conduct initial maintenance prior to final usage per the manufacturer's Care & Maintenance Documents. Do not conduct initial maintenance until adhesive has cured per the adhesive technical data.
 8. Provide trained installers that are professional, licensed, insured and acceptable to manufacturer of resilient vinyl wall base materials.
 9. Ensure installers or installation teams meet one of the following requirements:
 - a. Have completed INSTALL (International Standards & Training Alliance)
 - b. CFI (Certified Floorcovering Installers) training programs
 - c. Certified by INSTALL or CFI.
 - d. Are being supervised by Project Managers or Field Supervisors that are INSTALL (International Standards & Training Alliance) certified, CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association) CIM (Certified Installation Manager).
 10. Follow all requirements in the appropriate Technical Data Sheets, Care & Maintenance Documents, Warranties and other technical documents or instructions.

3.2 EXAMINATION

- A. General: Follow guidelines laid out in Division 01.

- B. Verification of Conditions: Inspect all substrates/backgrounds to ensure they are clean, smooth, permanently dry, structurally sound and without voids. Confirm all areas are properly sealed and acclimated per manufacturer's requirements.
- C. Verification of Products: In accordance with manufacturer's installation requirements, visually inspect material for size, style, color or visual defects prior to installing. Any material that is incorrect or visually defective shall not be installed.

3.3 SUBSTRATE/BACKGROUND PREPARATION

- A. General: Follow guidelines laid out in Division 01. Work required ensuring substrate/background meets manufacturers' guidelines are the responsibility of the general contractor.
- B. Preparation: Ensure substrate/background meets the requirements of ASTM F1861 for resilient wall base and Technical Data Sheets and Excelsior Technical Data Sheets.
 - 1. Substrates/backgrounds must be free of visible water or moisture, dust, sealers, paint, residual adhesives and adhesive removers, solvents, wax, oil, grease, mold, mildew and any other extraneous coating, film, material or foreign matter.
 - 2. Acclimate all products to be used during the installation and the installation environment prior to installation according to the manufacturers written instructions.
 - 3. Fill cracks, holes, depressions and irregularities in the substrate/background to prevent transferring through to the surface of the resilient wall base.

3.4 INSTALLATION

- A. General: Follow all relevant guidelines detailed in Division 01, as well as wall base and adhesive manufacturer's technical data sheets.
- B. Resilient Vinyl Wall Base: Install material in accordance with manufacturer's recommendations.
 - 1. Select the appropriate adhesive for the application and job site conditions.
 - 2. Install material according to roll sequence or with like run numbers.
 - 3. Ensure material is rolled appropriately into the adhesive using a hand roller.

3.5 CLEANING & MAINTENANCE

- A. General: Clean up installation area and vacuum dust or wipe material to remove any dirt, dust or debris.
- B. Initial Maintenance: Conduct initial maintenance per the manufacturer's recommended procedures stated in the Maintenance Documents. Excelsior Cleaning products are the recommended products for use.
- C. Regular Maintenance: Conduct maintenance on regular intervals as needed. Insufficient cleaning will reduce the wear life of the wall base and alter the aesthetic properties of the wall base. The amount of maintenance depends directly upon the amount of dirt and particulates the area is subjected to.

3.6 CLOSEOUT ACTIVITIES

- A. General: Follow all federal, state and local requirements and Division 01 Section 016600 and Section 017700.
- B. Protection: Protect newly installed material from damage by other trades. Be sure all construction debris is picked up and vacuumed or removed prior to leaving the area. Limit usage and foot traffic according to the adhesive's requirements. When moving appliances or heavy furniture, protect wall base from scuffing and tearing using temporary floor protection as well.

END OF SECTION 096513

SECTION 099000

PAINTING

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Surface preparation.
- B. Surface finish schedule.

1.2 REFERENCES

- A. ANSI/ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Laquer, and Related Products.
- B. ASTM D2016 - Test Method for Moisture Content of Wood.
- C. NPCA - Guide to U.S. Government Paint Specifications; National Paint and Coatings Association.

1.3 DEFINITIONS

- A. Conform to ANSI/ASTM D16 for interpretation of terms used in this Section.

1.4 QUALITY ASSURANCE

- A. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with five years experience.
- B. Applicator: Company specializing in commercial painting and finishing with five years documented experience and approved by product manufacturer.

1.5 SUBMITTALS

- A. Submit product data and samples under provisions of Section 013300.
- B. Provide product data on all finishing products.
- C. Submit complete current sample chart of colors for all paints proposed for use, from which Architect shall make color selections. Include complete identification of all times by manufacturer, trade name and specifications.
- D. Submit manufacturer's application instructions under provisions of Section 013300.

1.6 FIELD SAMPLES

- A. Provide samples under provisions of Section 016600.
- B. Locate where directed.
- C. Accepted sample may remain as part of the Work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 016600.

- B. Store and protect products under provisions of Section 016600.
- C. Deliver products to site in sealed and labeled containers; inspect to verify acceptance.
- D. Container labeling to include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
- E. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F in well ventilated area, unless required otherwise by manufacturer's instructions.
- F. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 50 degrees F for 24 hours before, during, and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- B. Do not apply exterior coatings during rain, or when temperature is below 50 degrees F, unless required otherwise by manufacturer's instructions.
- C. Minimum Application Temperatures for Latex Paints: 50 degrees F for interiors and exterior; unless required otherwise by manufacturer's instructions.
- D. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- E. Do not apply finish in areas where dust is being generated.
- F. Provide lighting level of 80 ft. candles, measured mid-height at substrate surface.

1.9 EXTRA STOCK

- A. Provide a one gallon container of each color and surface texture to Owner.
- B. Label each container with color, texture and room locations, in addition to the manufacturer's label.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Pittsburgh Paints.
- B. Pratt and Lambert.
- C. Glidden Coatings.
- D. Sherwin Williams.
- D. PPG

2.2 MATERIALS

- A. Coatings: Ready mixed. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.

- B. Coatings: Good flow and brushing properties; capable of drying or curing free of streaks or sags.
- C. Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best grade product will not be acceptable.
- D. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

2.3 FINISHES

- A. Refer to schedule at end of Section for surface finish schedule.

PART 3 EXECUTION

3.1 INSPECTION

- A. Verify that surfaces and substrate conditions are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. All exposed materials throughout this project shall be finished as per the Paint Schedule unless specifically indicated otherwise.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Plaster and Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3. Interior Located Wood: 15 percent, measured in accordance with ASTM D2016.
 - 4. Concrete floors: 8 percent.
- E. Beginning of installation means acceptance of existing surfaces and substrate.

3.2 PREPARATION

- A. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing surfaces or finishing.
- B. Correct minor defects and clean surfaces which affect work of this Section.
- C. Shellac and seal marks which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Aluminum Surfaces Scheduled for Paint Finish: Remove face contamination by steam or high pressure water Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- F. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply compatible sealer or primer.
- G. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.

- H. Concrete Floors: Remove contamination, acid etch, and rinse floors with clear water. Verify required acidalkali balance is achieved. Allow to dry.
- I. Gypsum Board Surfaces: Latex fill minor defects. Spot prime defects after repair.
- J. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- K. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- L. Uncoated Steel and Iron Surfaces: Remove grease, scale, dirt, and rust. Where heavy coatings of scale are evident, remove by wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- M. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
- N. Interior Wood Items Scheduled to Receive Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
- O. Wood and Metal Doors Scheduled for Painting: Finish top and bottom edges of doors same as faces. Reseal if doors are cut for fit during construction.

3.3 PROTECTION

- A. Protect elements surrounding the work of this Section from damage or disfiguration.
- B. Repair damage to other surfaces caused by work of this Section.
- C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.
- D. Remove empty paint containers from site.

3.4 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry.
- C. Apply each coat to uniform finish.
- D. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.
- E. Sand lightly between coats to achieve required finish.
- F. Allow applied coat to dry before next coat is applied.
- G. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

- H. Prime back surfaces of interior and exterior woodwork with primer paint.
- I. Prime back surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

3.5 CLEANING

- A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.
- B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, supplies, materials, and debris.
- C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.6 SCHEDULE - INTERIOR SURFACES

- A. Wood - Painted
 - 1. One coat alkyd prime sealer.
 - 2. Two coats alkyd enamel, semi-gloss.
- B. Wood - Transparent
 - 1. Filler coat (for open grained wood only).
 - 2. Two coats stain.
 - 3. One coat sealer.
 - 4. Two coats varnish, satin.
- C. Concrete, Concrete Block.
 - 1. One coat Epoxy block filler.
 - 2. Two coats Catalyzed Epoxy Enamel, gloss.
- D. Steel - Unprimed
 - 1. One coat Rust Inhibitive primer.
 - 2. Two coats alkyd enamel, semi-gloss.
- E. Steel - Primed
 - 1. Touch-up with original primer.
 - 2. Two coats alkyd enamel, semi-gloss.
- F. Steel - Galvanized
 - 1. One coat Galvanized primer.
 - 2. Two coats alkyd enamel, semi-gloss.
- G. Concrete Floors
 - 1. Two coats clear epoxy sealer.
 - 3. Or two coats of clear sealer.
- H. Plaster, Gypsum Board
 - 1. One coat water based epoxy primer sealer.
 - 2. Two coats epoxy finish, semigloss.
- I. Wall surfaces under Vinyl Wall Covering
 - 1. Two coats of alkyd primer sealer
- J. Fire Retardant Finish
 - 1. One coat fire retardant primer.
 - 2. Two coats fire retardant finish, gloss.
 - 3. Flame/Fuel/Smoke rating of 25/10/5.

END OF SECTION 099000

SECTION 102113

SOLID PHENOLIC TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Solid plastic toilet compartments, floor mounted and head rail braced.
- B. Urinal Vestibule screens; Floor mounted.

1.2 RELATED SECTIONS

- A. Section 092116 Gypsum Board System
- B. Section 102811 - Toilet and Bath Accessories.

1.3 REFERENCES

- A. ANSI A117.1 - Safety Standards for the Handicapped.
- B. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- C. NEMA LD-3 - High Pressure Decorative Laminates.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300 - Procedures for submittals.
- B. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall and floor supports, door swings.
- C. Product Data: Provide data on panel construction, hardware, and accessories.
- D. Samples: Submit two (2) samples of partition panels, 12 X 12 inch in size illustrating panel finish, color, and sheen.
- E. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions and requiring special attention.

1.5 REGULATORY REQUIREMENTS

- A. Conform to ANSI A117.1 and ADA code for access for the handicapped.

1.6 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings and instructed by the manufacturer.

1.7 COORDINATION

- A. Coordinate work under provisions of Section 016600.
- B. Coordinate the work with placement of support framing and anchors in wall and ceiling.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Bobrick: Product - 1082-Toilet Partitions
- SEA - 1081-Urinal Screens
- B. Gamco
- C. Substitutions: Under provisions of Section 016600 - Substitute Material and Equipment of Equal Items

2.2 MATERIALS

- A. Solid Phenolic Panel: NEMA LD-3 solid phenolic core with melamine laminate veneer material.

2.3 ACCESSORIES

- A. Pilaster Shoe: Formed ASTM A167 type 304 stainless steel with No. 4 finish, 3 inch high, with adjustable screw jack.
- B. Head Rails: Hollow stainless steel tube, 1 x 1-5/8 inch size, with anti-grip strips and cast socket wall brackets.
- C. Attachments, Screws, and Bolts: Stainless steel; tamper proof type, heavy duty stainless steel brackets, Institutional Grade.
- D. Through Bolts and Nuts: Stainless steel with tamper proof heads.
- E. Hardware: Stainless steel:
 - 1. Full Length Piano Hinge.
 - 2. Exterior emergency access feature.
 - 3. Door strike and keeper with rubber bumper.
 - 4. Coat hook with rubber bumper.
 - 5. Door pull for outswinging doors.

2.4 FABRICATION

- A. Fabricate partitions by forming solid phenolic with finished faces and edges. Finish edges convex.
- B. Bevel corners and edges of cut-outs.
- C. Doors and Panels:
 - 1. Thickness: 3/4 inch with threaded inserts.
 - 2. Door Width: 24 inch.
 - 3. Door Width for Handicapped Use: 36 inch, out-swinging.
 - 4. Height: 58 inch.
- D. Thickness of Pilasters: Minimum 3/4 inch with threaded inserts.

2.5 FINISHING

- A. Plastic Laminate, Single Color: Color as selected by Archstrate from manufacture's full range of colors
- B. Stainless Steel Surfaces: No. 4 finish.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 016600.
- B. Verify correct spacing of and between plumbing fixtures.
- C. Verify correct location of built-in framing, anchorage, and bracing.

3.2 INSTALLATION

- A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.
- B. Maintain 3/8 to 1/2 inch space between wall and panels and between wall and end pilasters.
- C. Attached panel brackets securely to walls using anchor devices.
- D. Attach panels and pilasters to brackets with tamper proof through bolts and nuts. Locate head rail joints at pilaster center lines.
- E. Anchor urinal screen panels to walls with full length stainless steel U-channel for wall attachment.
- F. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster. Conceal floor fastenings with pilaster shoes.
- G. Equip each door with continuous hinge, with emergency entrance feature, one door latch, one (1) coat hook and bumper; outswinging door with pull.
- H. Install door strike and keeper with door bumper on each pilaster in alignment with door latch.
- I. Field touch-up of scratches or damaged finish will not be permitted.
- F. Replace damaged or scratched materials with new materials.

3.3 ERECTION TOLERANCES

- A. Maximum Variation From True Position: 1/4 inch.
- B. Maximum Variation From Plumb: 1/8 inch.

3.4 ADJUSTING

- A. Adjust work under provisions of Section 017700.
- B. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.
- C. Adjust hinges to position doors in full closed position when unlatched. Return out swinging doors to closed position.
- D. Adjust adjacent components for consistency of line or plane.

END OF SECTION 102113

SECTION 10239

OPERABLE PARTITIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Manually operated, paired panel operable partitions.
- B. Related Sections include the following:
 - 1. Section 092116: Gypsum Board Systems
 - 2. Section 095113: Suspended Acoustical Ceilings

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified in writing by the operable partition manufacturer, as qualified to install the manufacturer's partition systems for work similar in material, design, and extent to that indicated for this Project.
- B. Acoustical Performance: Test operable partitions in an independent acoustical laboratory in accordance with ASTM E90 test procedure and classified in accordance with ASTM E413 to attain no less than the STC rating specified. Provide a complete and unedited written test report by the testing laboratory upon request.
- C. Preparation of the opening shall conform to the criteria set forth per ASTM E557 *Standard Practice for Architectural Application and Installation of Operable Partitions*.
- D. The operable wall must be manufactured by a certified ISO-9001-2015 company or an equivalent quality control system.

1.4 REFERENCE STANDARDS

- A. ASTM International
 - 1. ASTM E557 Standard Practice for Architectural Application and Installation of Operable Partitions.
 - 2. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
 - 3. ASTM C1036 - Standard Specification for Flat Glass.
 - 4. ASTM C1048 - Heat-Treated Flat Glass—Kind HS, Kind FT Coated and Uncoated Glass.
 - 5. ASTM E84 - Surface Burning Characteristics of Building Materials.
 - 6. ASTM E413 - Classification for Rating Sound Insulation
- B. Health Product Declaration Collaborative
 - 1. Health Product Declaration Open Standard v2.1
- C. International Standards Organization
 - 1. ISO 14021 - Environmental Labels and Declarations - Self-Declared Environmental Claims (Type II Environmental Labeling).
 - 2. ISO 14025:2011-10, Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures.
 - 3. ISO 14040:2009-11, Environmental Management - Life Cycle Assessment - Principles and Framework.

4. ISO 14044:2006-10, Environmental Management - Life Cycle Assessment - Requirements and Guidelines.
5. ISO 21930 – Sustainability in Buildings and Civil Engineering Works — Core Rules for Environmental Product Declarations of Construction Products and Services.

D. Other Standards

1. ADA – Americans with Disabilities Act.
2. ANSI Z97.1 - Safety Glazing Materials Used in Buildings.
3. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
4. NEMA LD3 - High Pressure Decorative Laminates.

1.5 SUBMITTALS

- A. Product Data: Material descriptions, construction details, finishes, installation details, and operating instructions for each type of operable partition, component, and accessory specified.
- B. Shop Drawings: Show location and extent of operable partitions. Include plans, elevations, sections, details, attachments to other construction, and accessories. Indicate dimensions, weights, conditions at openings, and at storage areas, and required installation, storage, and operating clearances. Indicate location and installation requirements for hardware and track, including floor tolerances required and direction of travel. Indicate blocking to be provided by others.
- C. Setting Drawings: Show imbedded items and cutouts required in other work, including support beam punching template.
- D. Samples: Color samples demonstrating full range of finishes available by architect. Verification samples will be available in same thickness and material indicated for the work.
- E. Reports: Provide a complete and unedited written sound test report indicating test specimen matches product as submitted.
- F. Create spaces that are healthy for occupants.
 1. Furnish products and materials with Health Product Declaration (HPD), Manufacturer Inventory, or other material health disclosure documentation. Products without an HPD or other disclosure documentation are not acceptable.
- G. Furnish materials that generate the least amount of pollution.
 1. Furnish products and materials that have third party verified environmental product declarations (EPD's). Consider products and materials that have optimized environmental performance (reduced life cycle impacts). Products without an EPD or other disclosure documentation are not acceptable.
- H. Buy American: Folding door to be manufactured in the United States in compliance with applicable U.S. Federal Trade Commission (FTC) and U.S. Customs Service and Border Protections regulations and be labeled "Made in America".

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Clearly mark packages and panels with numbering systems used on Shop Drawings. Do not use permanent markings on panels.
- B. Protect panels during delivery, storage, and handling to comply with manufacturer's direction and as required to prevent damage.

1.7 WARRANTY

- A. Provide written warranty by manufacturer of operable partitions agreeing to repair or replace any components with manufacturing defects.
- B. Warranty period: Two (2) years.

- C. Suspension System Warranty:
 - 1. Conf. 202 / 203: Five (5) years.

PART 2 – PRODUCTS

2.1 MANUFACTURERS, PRODUCTS, AND OPERATION

- A. Manufacturers: Subject to compliance with requirements, provide product by the following:
 - 1. Modernfold, Inc.
 - 2. Upon compliance with all of the criteria specified in this section, Manufacturers wishing to bid products equal to the product specified must submit to the architect 10 days prior to bidding complete data in support of compliance and a list of three past installations of products similar to those listed. The submitting manufacturer guarantees the proposed substituted product complies with the performance items specified and as detailed on the drawings.
- B. Doors to be manufactured in the U.S.A.
- C. Basis of Design Product: Subject to compliance with the requirements, provide the following product:
 - 1. Conf. 202 / 203: Acousti-Seal Premier - Paired Panel: Manually operated paired panel operable partition.

2.2 OPERATION

- A. Conf. 202 / 203: Acousti-Seal Premier - Paired Panel: Series of paired flat panels hinged together in pairs, manually operated, top supported with operable floor seals.
- B. Final Closure:
 - 1. Conf. 202 / 203: Horizontally expanding panel edge with removable crank

2.3 PANEL CONSTRUCTION

- A. Conf. 202 / 203: Nominal 3-inch (76mm) thick panels in manufacturer's standard 48-inch (1220mm) widths. All panel horizontal and vertical framing members fabricated from minimum 18-gage formed steel with overlapped and welded corners for rigidity. Top channel is reinforced to support suspension system components. Frame is designed so that full vertical edges of panels are of formed steel and provide concealed protection of the edges of the panel skin.
- B. Panel skin shall be:
 - 1. Conf. 202 / 203: 0.50-inch (13mm) NAUF medium density fiberboard, single material or composite layers continuously bonded to panel frame. Acoustical ratings of panels with this construction minimum:
 - a. 50 STC
- C. Hinges for Panels, Closure Panels, Pass Doors, and Pocket Doors shall be:
 - 1. Conf. 202 / 203: Full leaf butt hinges, attached directly to the panel frame with welded hinge anchor plates within panel to further support hinge mounting to frame. Lifetime warranty on hinges. Hinges mounted into panel edge or vertical astragal are not acceptable.
- D. Panel Trim: No vertical trim required or allowed on edges of panels; minimal groove appearance at panel joints.
- E. Panel Weights:
 - 1. Conf. 202 / 203: 50 STC - 8 lbs./square foot

2.4 PANEL FINISH

- A. Panel finish shall be:
 - 1. Conf. 202 / 203: Reinforced vinyl with woven backing weighing not less than 20 ounces (567 grams) per lineal yard.

- B. Panel Trim: Exposed panel trim of one consistent color:
 - 1. Conf. 202 / 203: To Be Advised

2.5 SOUND SEALS

- A. Vertical Interlocking Sound Seals between panels: Roll-formed steel astragals, with reversible tongue and groove configuration in each panel edge for universal panel operation. Rigid plastic or aluminum astragals or astragals in only one panel edge are not acceptable.
- B. Horizontal Top Seals: Continuous contact extruded vinyl bulb shape with pairs of non-contacting vinyl fingers to prevent distortion without the need for mechanically operated parts.
- C. Horizontal bottom floor seals shall be:
 - 1. Conf. 202 / 203: Modernfold SM2 Bottom Seal. Manually activated seals providing nominal 2" (51mm) operating clearance with an operating range of + 0.50" (13mm) to -1.50" (38mm). Seal shall be operable from panel edge or face. Extended seal shall exert nominal 120 pounds (54 kg) downward force to the floor throughout operating range.

2.6 SUSPENSION SYSTEM

- A. Conf. 202 / 203: #17 Suspension System
 - 1. Suspension Tracks: Minimum 11-gauge, 0.12-inch (3.04mm) roll-formed steel track, suitable for either direct mounting to a wood header or supported by adjustable steel hanger brackets, supporting the load-bearing surface of the track, connected to structural support by pairs of 0.38-inch (10mm) diameter threaded rods. Aluminum track is not acceptable.
 - a. Exposed track soffit: Steel, integral to track, and pre-painted off-white.
 - 2. Carriers: One all-steel trolley with steel tired ball bearing wheels per panel (except hinged panels). Non-steel tires are not acceptable.

2.7 OPTIONS

- A. (NONE SELECTED)

PART 3 – EXECUTION

3.1 INSTALLATION

- A. General: Comply with ASTM E557, operable partition manufacturer's written installation instructions, Drawings and approved Shop Drawings.
- B. Install operable partitions and accessories after other finishing operations, including painting have been completed.
- C. Match operable partitions by installing panels from marked packages in numbered sequence indicated on Shop Drawings
- D. Broken, cracked, chipped, deformed or unmatched panels are not acceptable.

3.2 CLEANING AND PROTECTION

- A. Clean partition surfaces upon completing installation of operable partitions to remove dust, dirt, adhesives, and other foreign materials according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions in a manner acceptable to the manufacturer and Installer that ensure operable partitions are without damage or deterioration at time of Substantial Completion.

3.3 ADJUSTING

- A. Adjust operable partitions to operate smoothly, easily, and quietly, free from binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Lubricate hardware and other moving parts.

3.4 EXAMINATION

- A. Examine flooring, structural support, and opening, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of operable partitions. Proceed with installation only after unsatisfactory conditions have been corrected.

3.5 DEMONSTRATION

- A. Demonstrate proper operation and maintenance procedures to Owner's representative.
- B. Provide Operation and Maintenance Manual to Owner's representative.

END OF SECTION 102239

SECTION 102813
TOILET AND BATH ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Toilet, bath, and washroom accessories.
- B. Grab bars.
- C. Wall mirrors
- D. Attachment hardware.

1.2 RELATED SECTIONS

- A. Section 093213 - Wall Tile.
- B. Section 102113 - Solid Phenolic Toilet Compartments.

1.3 REFERENCES

- A. ANSI A117.1 - Safety Standards for the Handicapped.
- B. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- C. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- D. ASTM A269 - Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- E. ASTM A366 - Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
- F. ASTM B456 - Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- G. NEMA LD-3 - High Pressure Decorative Laminates.

1.4 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.
- C. Samples: Submit two samples of each component, illustrating color and finish.
- D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

1.5 REGULATORY REQUIREMENTS

- A. Conform to ANSI A117.1 and ADA code for access for the handicapped.

1.6 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on product data and instructed by the manufacturer.

1.7 COORDINATION

- A. Coordinate work under provisions of Section 016600.
- B. Coordinate the work with the placement of internal wall reinforcement and reinforcement of toilet partitions to receive anchor attachments.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Bobrick: Product - Contura Series.
- B. Or Equal.

2.2 MATERIALS

- A. Stainless Steel Sheet: ASTM A167, Type 304.
- B. Tubing: ASTM A269, stainless steel.
- C. Adhesive: Two component epoxy type, waterproof.
- D. Fasteners, Screws, and Bolts: Hot dip galvanized, tamper-proof, and security type.
- E. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.3 FABRICATION

- A. Weld and grind joints of fabricated components, smooth.
- B. Form exposed surfaces from single sheet of stock, free of joints. Form surfaces flat without distortion. Maintain surfaces without scratches or dents.
- C. Fabricate grab bars of tubing, free of visible joints, return to wall with end attachment flanges. Form bar with 1 inches clear of wall surface. Knurl grip surfaces.
- D. Shop assemble components and package complete with anchors and fittings.
- E. Provide steel anchor plates, adapters, and anchor components for installation.

2.4 KEYING

- A. Supply 4 keys for each accessory to Owner.
- B. Master key all accessories.

2.5 FINISHES

- A. Galvanizing: ASTM A123 to 1.25 oz/sq yd . Galvanize ferrous metal and fastening devices.

- B. Shop Primed Ferrous Metals: Pretreat and clean, spray apply one coat primer and bake.
- C. Chrome/Nickel Plating: ASTM B456, Type SC 2 satin finish.
- D. Stainless Steel: No. 4 satin luster finish.
- E. Back paint components where contact is made with building finishes to prevent electrolysis.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 016600.
- B. Verify that site conditions are ready to receive work and dimensions are as indicated on shop drawings and instructed by the manufacturer.
- C. Verify exact location of accessories for installation.

3.2 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

3.3 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions, ANSI A117.1 and ADA.
- B. Install plumb and level, securely and rigidly anchored to substrate.

3.4 SCHEDULE

	ITEM	MODEL #	FINISH
A.	Toilet Tissue Dispenser	B-4288	Stainless Steel
B.	Napkin Disposal	B-4354	Stainless Steel
C.	Grab Bars	B-6206	Stainless Steel
D.	Mirrors	B-165 Series	Stainless Steel (Size as indicated on drawings)
E.	Baby Changing Station	Bradley 962-11	Stainless Steel

END OF SECTION 102813

SECTION 104416

FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Portable, hand-carried fire extinguishers.
 - 2. Fire protection cabinet for portable fire extinguishers.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.
- B. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.
- C. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
 - 1. Provide fire extinguishers approved, listed, and labeled by FMG.

1.5 COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure of hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
 - 2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each [fire protection cabinet] [mounting bracket] [fire protection cabinet and mounting bracket] indicated.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. J. L. Industries, Inc.; a division of Activar Construction Products Group.
 - b. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
 - c. Larsen's Manufacturing Company.
 - 2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B and bar coding for documenting fire extinguisher location, inspections, maintenance, and recharging.
- B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 2-A:10-B:C, 5-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

2.2 SECURITY FIRE PROTECTION CABINET

- A. Manufacturers:
 - 1. JL Industries, Inc.
 - 2. Kidde Fyrnetics.
 - 3. Larsen's Manufacturing Company
- B. Cabinet Type: Suitable for fire extinguisher.
- C. Cabinet Construction: Non-rated.
- D. Cabinet Material: 0.0781-inch- thick, stainless-steel sheet.
- E. Semi-recessed Cabinet: Cabinet box partially recessed in walls of sufficient depth to suit style of trim indicated; with one-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend). Provide where walls are of insufficient depth for recessed cabinets but are of sufficient depth to accommodate semi-recessed cabinet installation.
 - 1. Square-Edge Trim: 1-1/4- to 1-1/2-inch backbend depth.
- F. Cabinet Trim Material: Same material and finish as door.
- G. Door Material: 0.0781-inch- thick, stainless-steel sheet.
- H. Door Style: Vertical duo panel with frame.
- I. Door Glazing: Tempered break glass.
- J. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated, and as follows:
 - 1. Recessed door pull.
 - 2. Continuous Hinge: Same material and finish as trim, permitting door to open 180 degrees.
 - 3. Mechanical Deadlock: Lockbolt retracted and extended by five-tumbler paracentric cylinder; keyed one side.
 - a. Lockbolt: 1-1/2 inches high by 3/4 inch thick; 5/8-inch throw.

- K. Accessories:
1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to security fire protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
 2. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location.
 - a. Identify fire extinguisher in security fire protection cabinet with the words "FIRE EXTINGUISHER."
 - 1) Location: Applied to cabinet door.
 - 2) Application Process: Pressure-sensitive vinyl letters.
 - 3) Lettering Color: Black.
 - 4) Orientation: Vertical.
 3. Keys to Door Locks: Three per lock.
- L. Finishes:
1. Manufacturer's standard baked-enamel paint for the following:
 - a. Interior of cabinet.
 2. Steel: Baked enamel or powder coat.
 3. Stainless Steel: No. 4 finish.

2.3 FABRICATION

- A. Fire Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
1. Weld joints and grind smooth.
 2. Provide factory-drilled mounting holes.
 3. Prepare doors and frames to receive locks.
 4. Install door locks at factory.
- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles selected.
1. Fabricate door frames of one-piece construction with edges flanged.
 2. Miter and weld perimeter door frames.
- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.4 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces of fire protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire protection cabinets after assembly.
- D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.5 STEEL FINISHES

- A. Surface Preparation: Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning" or SSPC-SP 8, "Pickling".
- B. Factory Prime Finish: Apply manufacturer's standard, fast-curing, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.
- C. Baked-Enamel or Powder-Coat Finish: Immediately after cleaning and pre-treating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils.
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

2.6 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
 - 1. Run grain of directional finishes with long dimension of each piece.
 - 2. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
 - 3. Directional Satin Finish: No. 4.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where semi-recessed cabinets will be installed.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

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

3.3 INSTALLATION

- A. General: Install fire protection cabinets in locations indicated.
 - 1. Fire Protection Cabinets: 54 inches above finished floor to top of cabinet.
- B. Fire Protection Cabinets: Fasten cabinets to structure, square and plumb.
 - 1. Unless otherwise indicated, provide recessed fire protection cabinets. If wall thickness is not adequate for recessed cabinets, provide semi-recessed fire protection cabinets.
 - 2. Fasten mounting brackets to inside surface of fire protection cabinets, square and plumb.
- C. Identification: Apply vinyl lettering at locations indicated.

3.4 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes or replace fire protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire protection cabinet and mounting bracket manufacturers.
- E. Replace fire protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104416

SECTION 210000

FIRE PROTECTION SYSTEM

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The General Conditions of the Contract and Supplementary Conditions of the Contract shall govern the work under this Section of the Specifications. The Contractor is specifically directed to refer to said conditions.
- B. It is understood that these specifications, and the accompanying drawings, complement complete apparatus, fully erected and in successful operating condition. All work must be preformed in the best and most substantial manner.
- C. These specifications are intended to provide complete, and in proper operation, all sprinkler system piping, equipment, heads, valves, controls, air compressor, and accessories, all as specified herein or shown on the accompanying drawings, or reasonably implied in either. The building shall be provided with complete coverage sprinkler system for the spaces designated on the drawings classification as required. System shall consist of a calculated dry system unless indicated otherwise. Verify all pertinent criteria. The systems shall conform to layout shown and meet all requirements of agencies listed under "REGULATIONS AND STANDARDS" below. Refer to plans and specifications for additional information.
- D. Pipe, fittings, valves, and connections for fire protection and sprinkler systems shall be furnished by fire protection contractor.

1.2 RELATED WORK

- A. Section 211313 - Wet-pipe Sprinkler Systems.

1.3 SYSTEM LAYOUT

- A. Where plans indicate layout of system components, the layout shall be verified to comply with "REGULATIONS AND STANDARDS" and shall be revised if required to comply. The location of the sprinkler system piping and components shall be coordinated with all other trades. Revisions to sprinkler system layout shall be at Sprinkler Contractor's expense. Any such revisions shall be verified with the Architect.

1.4 ELECTRICAL WORK

- A. See "COORDINATION".

1.5 SPRINKLER SYSTEM CONTRACTOR

- A. It is intended that the work under this section is to be preformed by a qualified Fire Protection Piping Systems Contractor regularly engaged in this type of work. The Contractor is to hold a current license to perform this work and be certified by the State Fire Marshall. All documents shall bear this certification.

1.6 REGULATIONS, STANDARDS AND REFERENCES

- A. It is the intention of these specifications and the accompanying drawings, that all elements and features of the fire protection system shall be in accordance with the standards of the National Fire Association (NFPA), the State Fire Marshall, all applicable building codes and Property Insurance Association of Louisiana whether so indicated or not. NFPA standards are on file in office of Engineer and may be examined at the Contractor's request.

- B. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings, Class 150.
- C. ANSI/ASME B16.3 - Malleable Iron Threaded Fittings, Class 150. Interior of building.
- D. Specifications for Qualification of Welding Procedures and Welders for Piping and Tubing.
- E. NFPA 13 - Installation of Sprinkler Systems.
- F. NFPA 14 - Standpipe and Hose Systems.

1.7 QUALITY ASSURANCE

- A. Conform to NFPA 13 for sprinkler systems.
- B. Conform to NFPA 14 for standpipe hose systems.
- C. Welding Materials and Procedures: Conform to ASME Code.
- D. Employ certified welders in accordance with ANSI/ASME Section 9. AWS D10.9.
- E. Valves: Bear UL FM label or marking. Provide manufacturer's name and pressure rating marked on valve body.

1.8 SUBMITTALS

- A. Submit product data under provisions of section 013000 - Administrative Requirements
- B. Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals.
- C. Indicate valve data and ratings.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store valves in shipping containers, with labeling in place, under provisions of Section 016000 – Product Requirements.
- B. Provide temporary protective coating on cast iron and steel valves.
- C. Provide temporary end caps and closures. Maintain in place until installation.

1.10 AREAS SUBJECT TO FREEZING

- A. For areas requiring protection and not receiving direct heating during times of potential freezing, such as building overhangs, porches, canopies, attics, etc. provide a compressed air dry pipe system for these areas only, see drawings for locations. Coordinate electrical requirements with contractor.

1.11 MANUFACTURER'S OR TRADE NAMES

- A. Where the plans or specifications mention the names of manufacturers or the products of specific manufacturers, it is intended that the Contractor shall furnish the item or items as specified. Products of manufacturers that are not mentioned shall be subject to prior review by the Engineer and shall in any case mentioned shall be subject to prior review by the Engineer and shall in any case be in accordance with regulations and standards as state above.

1.12 SHOP DRAWINGS AND SUBMITTAL DATA

- A. Within fifteen (15) days of award of the contract, the contractor shall submit six (6) copies of system piping shop drawings and six (6) copies of manufacturer's data and descriptive literature and drawings for all equipment and materials. Additionally, provide a reproducible (sepia) copy of the system piping shop drawings. All drawings, literature and data on all equipment shall be submitted at the same time; this material shall contain complete layout, capacity data, dimensions and other pertinent information necessary for the Architect to properly review and evaluate the item that necessary to meet the requirements for submittal to the State Fire Marshall.
- B. The contractor shall obtain approval of agencies listed under "REGULATIONS AND STANDARDS" before submitting to the Engineer, except that the date for State Fire Marshall's review shall be submitted to the Engineer prior submitting to the Fire Marshall. All required review fees and applicable requirements shall be by the contractor. No item of equipment or material shall be place on order until Final Review comments have been received from the Architect. See "DRAWINGS" below.

1.13 ORDINANCES, RULES AND REGULATIONS

- A. All material and construction shall conform to the requirements of all building, plumbing and sanitary codes and laws in force in the locality in which the work is to be done. All materials and construction shall also conform to the rules and regulations listed above under "REGULATIONS AND STANDARDS".

1.14 DRAWINGS

- A. The contractor shall submit detailed drawings for all sprinkler system showing exact locations and sizes of all elements in the system before fabrication is begun. Engineer shall have the prerogative of changing the position or configuration of these systems without changing the total scope of work involved to comply with "REGULATIONS AND STANDARDS".

1.15 GUARANTEE

- A. The contractor shall guarantee all materials and workmanship under this contract for a period of one (1) year from date of final acceptance of his work and shall repair or replace any such defective materials and workmanship without cost to the Owner.
- B. The guarantee shall include complete service, including adjustment service and inspection, during the guarantee period as required by agencies listed under "REGULATIONS AND STANDARDS".

1.16 APPROVAL OF PRODUCT PRIOR TO BIDDING

- A. Refer to Instructions to Bidders

PART 2 PRODUCTS

2.1 PIPE AND TUBE

- A. See Section 211313 – Wet-pipe Sprinkler System
- B. Underground pipe shall be C900 to within 5' of building.

2.2 PIPE FITTINGS

- A. Steel Fittings: ANSI/ASME B16.9, wrought steel, butt welded. ANSI/ASME B16.25, buttweld ends. ASTM A234, wrought carbon steel and alloy steel. ANSI/ASME B16.5, steel flanges and fittings. ANSI/ASME B16.11, forges steel socket welded and threaded.

- B. Cast Iron Fittings: ANSI/ASME B16.1, flanges and fittings. B16.4, screwed fittings.
- C. Malleable Iron Fittings: ANSI/ASME B16.3, screwed type. ANSI/ASTM A47.

2.3 JOINT MATERIALS

- A. Solder: ANSI/ASTM B32, 95/5 alloy.
- B. Brazing: ANSI/AWS A5.8.
- C. Threaded Joint Compound.

2.4 UNIONS, FLANGES, AND COUPLINGS

- A. Unions: 150 psi malleable iron for threaded ferrous piping.
- B. Flanges: 150 psi forged steel slip-on flanges for ferrous piping.

2.5 ACCEPTABLE MANUFACTURER - GATE VALVES

- A. Nibco 637-31
- B. Central 722 U Series
- C. Substitutions: Under provisions of Instructions To Bidders.

2.6 GATE VALVES

- A. Bronze, rising stem, inside screw, solid wedge.

2.7 ACCEPTABLE MANUFACTURERS - GLOBE OR ANGLE VALVES

- A. Nibco GS-132-U
- B. Crane 143
- C. Substitutions: Under provisions of Instructions To Bidders.

2.8 GLOBE OR ANGLE VALVES

- A. Bronze, rising stem, inside screw, renewable composition disc.

2.9 ACCEPTABLE MANUFACTURERS - CHECK VALVES

- A. NIBCO CS-172
- B. Crane 147
- C. Substitutions: Under provisions of Instructions To Bidders.

2.10 CHECK VALVES

- A. Iron body, bronze trim, swing disc, renewable disc and seat.

2.11 ACCEPTABLE MANUFACTURERS - BUTTERFLY VALVES

- A. Nibco LD 3510-2 Series

- B. Central Fig. 570 or 580
- C. Substitutions: Under provisions of Instructions To Bidders.

2.12 BUTTERFLY VALVES

- A. Iron body, bronze stainless steel disc and stem extended for insulated work, resilient replaceable liner seat.

2.13 ACCEPTABLE MANUFACTURERS - DRAIN VALVES

- A. Nibco F-667-0 Series
- B. Central 722 U Series
- C. Substitutions: Under provisions of Instructions To Bidders.

2.14 DRAIN VALVES

- A. Brass ball valve with cap and chain, 3/4 inch (19 mm) hose thread.

2.15 VALVE OPERATORS

- A. Provide handwheels for gate, globe or angle, and drain valves.
- B. For butterfly valves provide gear operators for sizes 8 inches and larger. For smaller sizes provide level lock handle with toothed plate.

2.16 VALVE CONNECTIONS

- A. Provide valve connections to match pipe joints. Use valves of pipe size.
- B. For copper tube, provide threaded solder adapters for connection to valve.
- C. Provide butterfly valve with tapped lug body when used for isolating service.

2.17 SIAMESE FIRE DEPARTMENT CONNECTIONS

- A. Provide two-way standard siamese fire department connection with chrome plated finish, local fire department threads, dust caps and chains, 3/4" automatic drip, marked "SPRINKLER - FIRE DEPARTMENT CONNECTION".

2.18 ACCEPTABLE MANUFACTURERS - SPRINKLER HEADS

- A. Reliable Automatic Sprinkler
- B. Viking Corp.
- C. Tyco-Fire
- D. Substitutions: Under provisions of Instruction To Bidders.

PART 3 INSTALLATION

3.1 GENERAL

- A. Furnish and install in a neat workmanlike manner, all piping shown on drawings or that is

specified or required to provide a complete, properly operating installation. All piping and accessories shall conform to standards as applicable.

- B. Run piping parallel with the lines of the building, unless specifically shown or noted otherwise. All pipe, fittings, valves, etc., shall have sufficient clearance from other work to finish at least 1/2 inch from other work or finished covering of other piping.
- C. Provide all necessary hangers, anchors, thrust blocks, etc., to properly support and protect piping system, as required by agencies listed under "REGULATIONS AND STANDARDS".
- D. Under no circumstances is the contractor to attach to or support from any bar joist bridging. Any supports to the bar joists or any structural systems are to be approved by the Architect/Engineer. All supplement angle or channel iron required to support equipment of this Specification is to be furnished by the contractor and is to be independent of any other supports.

3.2 DESIGN

- A. The sprinkler systems shall be designed as required for occupancies specified by experienced personnel have competency in the execution of such work. Sprinkler system design shall be performed only by licensed sprinkler contractors.
- B. Sprinkler piping shall be protected from freezing during the lay-a-way period.
- C. NFPA rules and regulations governing the design shall be scrupulously adhered to.
- D. Piping shall be installed in accordance with NFPA 13.

3.3 EXECUTION

- A. Run piping concealed above furred ceiling and in joists to minimize obstructions. Expose only heads.
- B. Coordinate sprinkler piping routing and heads with all trades.
- C. Protect sprinkler heads against mechanical injury.
- D. Include all costs of shop drawings review and approval from authorities in price.
- E. Locate outside alarm on wall of building adjacent to Siamese department connections.
- F. Provide cabinet containing required number of spare heads as per NFPA 13, of each type, along with wrench suitable for each type of head.
- G. Provide flow switch on leaving side of main valve and monitoring switch on main valve. Flow switch shall sense flow and sound appropriate zone of fire alarm system monitoring switch on each main valve; when valve is started to its "closed" position shall indicate trouble on appropriate zone of fire alarm system and sound local audible alarm. Wiring between flow switches and monitoring switches and fire alarm system shall be provided under the Electrical Division.
- H. Furnish and install sprinkler zone valves and flow switches where indicated on the drawings for the zoning of the system. Each of these devices shall be connected into the fire alarm system as indicated for the main valve, including local alarming.
- I. Provide all test and drain valves as required per NFPA 13.
- J. Support sprinkler piping in accordance with NFPA 13.

- K. Provide new water service as shown on the drawings.
- L. Install air compressor on vibration isolators, as required.
- M. Screw joint steel piping up to and including 1-1/2 inch diameter. Screw or Roll Goove 2 inch diameter and larger. PER NFPA 13.
- N. Die cut screw joints with full cut standard taper pipe threads with red lead and linseed oil or other non-toxic joint compound applied to male threads only.
- O. Coat threaded ends with pipe lubricant compound.
- P. Steel piping, main sized saddle branch connections or direct connection of branch lines to mains is permitted if main is one pipe size larger than the branch for up to 6 inch mains and if main is two pipe sizes larger than branch for 8 inch and larger mains.
- Q. Solder Braze copper tubes.
- R. Install piping in accordance with NFPA 13 for sprinkler systems and NFPA 14 for standpipe and hose systems.
- S. Do not penetrate building structural members unless indicated.
- T. Provide sleeves when penetrating footings floors and walls.
- U. Seal pipe and sleeve penetration to achieve fire resistance equivalent to fire separation required.

3.4 INSTALLATION - VALVES

- A. Install valves with stems upright or horizontal, not inverted.
- B. Provide gate valves for shut-off or isolating service.
- C. Where approved, butterfly valves may be used instead of gate valves.
- D. Provide drain valves at main shut-off valves, low points of piping and apparatus.

3.5 SLEEVES AND PLATES

- A. Wherever pipes pass through concrete slabs, furnish and install sleeves, properly located for the work.
- B. Use sleeves of sufficient size to allow the specified pipe covering to pass through the sleeves and finish sleeves flush with walls and ceiling.
- C. Sleeves shall be galvanized steel not lighter than 24 gauge.
- D. Seal spaces between sleeve and pipe. Use packing device or material for UL rating to match rating of wall or floor/ceiling as rated under UL File R9658.

3.6 ESCUTCHEONS

- A. Where pipes passing through floors, walls or ceiling exposed to view in finished areas, provide pressed steel split plates which cover the opening and fit snugly to pipe.

3.7 COORDINATION

- A. All interlock and signal wiring runs to the annunciator panel will be furnished and installed and as part of the Electrical Work.
- B. This contractor shall provide for all switches and interlocking devices on all valves as required.

3.8 UNDERGROUND PIPING

- A. Underground fire protection system piping shall be installed in accordance with the requirements of NFPA 24, Private Fire Service Mains and Their Appurtenances. Provide concrete thrust blocking at each change of direction of the piping and at all tees, plugs, and caps in accordance with NFPA 24. Where thrust blocking is impractical, fittings with a mechanical joint retainer gland, approved for the piping material utilized, may be used in lieu of thrust blocking.

END OF SECTION

SECTION 211313

WET-PIPE SPRINKLER SYSTEMS

PART 1 GENERAL

- 1.1 WORK INCLUDED
 - A. Installation of new sprinkler and related piping systems in new construction.
- 1.2 WORK INSTALLED BUT SPECIFIED UNDER OTHER SECTIONS
 - A. Section Fire Protection Piping: Piping and valves.
- 1.3 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS
 - A. Furnish sleeves to General Contractor.
- 1.4 RELATED WORK
 - A. Section 230529 - Supports and Anchors.
- 1.5 REFERENCES:
 - A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volt maximum).
 - B. NFPA 13 - Installation of Sprinkler Systems.
- 1.6 SYSTEM DESCRIPTION:
 - A. System to provide coverage for entire new building area.
 - B. Interface system with building control system. Building fire and smoke alarm system.
 - C. Provide system per NFPA 13 hazard requirement.
- 1.7 QUALITY ASSURANCE:
 - A. Design and installation to conform to NFPA 13.
 - B. Equipment and components: Bear UL FM label or marking.
 - C. Specialist Firm: Company specializing and licensed in sprinkler systems.
- 1.8 REGULATORY REQUIREMENTS:
 - A. Hydraulic Calculations, Product Data, Shop Drawings: Bear stamp of approval of Fire Marshal.
 - B. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, components and accessories.
 - C. Submit shop drawings product data hydraulic calculations to Fire Marshal. Submit proof of approval to Architect. Include check for review fee with submittal to Fire Marshal's office.
- 1.9 PROJECT RECORD DOCUMENTS:
 - A. Submit documents under provisions of Section 017839.

1.10 OPERATION AND MAINTENANCE DATA:

- A. Submit manufacturer's operation and maintenance data under provisions of Section 017823.
- B. Include written maintenance data on components of system, servicing requirements, and record drawings.
- C. Include maintenance, inspection data, replacement part numbers and availability, and location and numbers of service depot.

1.11 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver and store materials in shipping containers with labeling place under provisions of Section 016000.
- B. Provide suitable wrenches for each head type.
- C. Maintain caps in place until installation.

1.12 EXTRA STOCK:

- A. Provide extra sprinkler heads under provisions of NFPA 13.
- B. Provide suitable wrenches for each head type.
- C. Provide storage cabinet, size and type as per NFPA-13

PART 2 PRODUCTS

2.1 PIPING MATERIALS:

- A. Above Ground Inside Building Piping: Pipe diameter smaller than and up to 2" shall be Steel Schedule 40 pipe, Pipe diameters 2-1/2" and larger shall be Steel Schedule 10 or Steel Schedule 40 pipe, As permitted by NFPA 13.

2.2 ACCEPTABLE MANUFACTURERS - SPRINKLER HEADS:

- A. Reliable Automatic Sprinkler
- B. Viking Corp.
- C. Tyco-Fire
- D. Substitutions: Under provisions of Instruction To Bidders.

2.3 SPRINKLER HEADS:

- A. Exposed Area Type: Standard upright type with brass finish.
- B. Sidewall Type: Brass Chrome plated finish with matching escutcheon.
- C. Fusible Link: Temperature rated for specific area hazard.
- D. Guards: finish to match sprinkler head.
- E. Finished ceilings: Pendent sprinklers - concealed type with white cover plates. Unless otherwise noted on plans.

PART 3 EXECUTION

3.1 PREPARATION:

- A. Place pipe runs to minimize obstruction to other work.

3.2 INSTALLATION:

- A. Run piping concealed above furred ceiling and in joists to minimize obstructions. Expose only heads.
- B. Coordinate sprinkler piping routing and heads with all trades.
- C. Protect sprinkler heads against mechanical injury.
- D. Include all costs of shop drawings review and approval from authorities in price.
- E. Locate outside alarm on wall of building adjacent to siamese fire department connections.
- F. Provide cabinet containing required number of spare heads as per NFPA 13, of each type, along with wrench suitable for each type of head.
- G. Provide flow switch on leaving side of main valve and monitoring switch on main valve. Flow switch shall sense flow and sound appropriate zone of fire alarm system monitoring switch on each main valve; when valve is started to its "closed" position shall indicate trouble on appropriate zone of fire alarm system and sound local audible alarm. Wiring between flow switches and monitoring switches and fire alarm system shall be provided under electrical division.
- H. Furnish and install sprinkler zone valves and flow switches where indicated on the drawings for the zoning of the system. Each of these devices shall be connected into the fire alarm system as indicated for the main valve, including local alarming.
- I. Provide all test and drain valves as required for system per NFPA 13.
- J. Support sprinkler piping in accordance with NFPA 13.
- K. Provide new water service as shown on the drawings.

3.3 CLEANING:

- A. Flush entire piping system of foreign matter.

3.4 SYSTEM TESTS:

- A. Hydrostatically test entire system.
- B. Test shall be witnessed by Fire Marshal and Architect.

END OF SECTION

SECTION 221000

PLUMBING PIPING

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Pipe and Pipe Fittings
- B. Valves
- C. Sanitary Sewer Piping System
- D. Domestic Water Piping system
- E. Service Connections
- F. Natural Gas Piping System

1.2 RELATED WORK

- A. Section 230000 - General Provisions
- B. Section 230516 - Expansion Compensation
- C. Section 230523 - Supports and Anchors
- D. Section 230700 - Piping Insulation
- E. Section 221010 - Plumbing Specialties
- F. Section 224000 - Plumbing Fixtures and Trim

1.3 REFERENCES:

- A. ANSI/ASME B16.3 - Malleable Iron Threaded Fittings Class 150 NS 300.
- B. ANSI/ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV.
- C. ANSI/ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV.
- D. ANSI/ASME Sec. 9 - Welding and Brazing Qualifications.
- E. ANSI/ASTM B32 - Solder Metal.
- F. ANSI/ASTM C443 - Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
- G. ASTM A53 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.
- H. ASTM A74 - Cast Iron Soil Pipe and Fittings.
- I. ASTM A234 - Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.
- J. ASTM B88 - Seamless Copper Water Tube.

- K. ASTM B306 - Copper Drainage Tube (DWV).
- L. ASTM C564 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- M. AWS A5.8 - Brazing Filler Metal.
- N. AWWA C601 - Standard Methods for the Examination of Water and Waste Water.
- O. CISPI 301 - Cast Iron Soil Pipe and Fittings for Hubless Cast Iron Sanitary System.
- P. CISPI 310 – Standard for cast iron couplings
- Q. LSPC – The latest addition of the Louisiana State Plumbing Code.

1.4 QUALITY ASSURANCE:

- A. Valves: Manufacturer's name and pressure rating marked on valve body.
- B. Welding Materials and Procedures: Conform to ASME Code and applicable state labor regulations.
- C. Welders Certification: In accordance with ANSI/ASME Sec. 9. ANSI/AWS D 1.1.
- D. Cast iron pipe and fittings shall be marked with CISPI's collective trademark.

1.5 SUBMITTALS:

- A. Submit shop drawings and product data under provisions of Section 013000.
- B. Include data on pipe material, pipe fittings, valves and accessories.

1.6 WATER PIPE AND FITTING MATERIALS STANDARD

- A. Plastic Water Pipe and Fittings
 1. ABS and PVC Plastic Tubular Fittings: ASTM F 409, ANSI/NSF 24, ANSI/NSF 14
 2. Joints for IPS PVC pipe using solvent cement: ASTM D 2672
 3. Chlorinated poly (vinyl chloride) (CPVC) plastic pipe, Schedule 80, 2" and under: ASTM F 441, listed
 4. Chlorinated poly (vinyl chloride) (CPVC) plastic pipe (SDR-PR): ASTM F 442
 5. CPVC Pipe and fittings: ASTM D 2846, Listed
 6. Cross-linked Polyethylene/Aluminum/Cross-linked Polyethylene (PEX-AL-PEX) pressure pipe and fittings: ASTM F 1281
 7. Cross-linked Polyethylene (PEX) plastic hot and cold water distribution system: ASTM F 877, Listed
 8. Cross-linked Polyethylene (PEX) tubing: ASTM F 876
 9. Cross-linked Polyethylene (PEX) tubing systems for pressure: CAN/CSA-B137.5M89, listed
 10. Flexible Elastomeric pressure joints: ASTM D 3139, See 308.8
 11. Metal insert fittings for PB tubing: ASTM F 1380
 12. Polyethylene/Aluminum/Polyethylene (PE-AL-PE) pressure pipe and fittings: ASTM F 1282
 13. Polyethylene pipe and tubing (PE) Number 2305, 2306, 3306, 3406, 3408: ASTM D 2104, ASTM D 2239, ASTM D 2737, Listed, See 303.8.2
 14. Poly (vinyl chloride) (PVC) plastic pipe fittings, Schedule 40: ASTM D 2466
 15. Pressure rated ABS-fittings: ASTM D 2468, Listed
 16. Pressure rated ABS-pipe Number 1210, 2112, 1316: ASTM D 1527, ASTM D 2282, Listed, See 303.8.2

17. PVC injection molded gasketed fittings for pressure applications: CAN/CSA-B137.2-M89, Listed
 18. PVC Pipe, Number 1120, 1220: ASTM D 1785, ASTM D 2241, listed, See 303.8.2
 19. PVC socket-type fittings, Schedule 80: ASTM D 2467, listed
 20. Socket-type chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Schedule 80, 2" and under: ASTM F 439, listed
 21. Threaded chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Schedule 80, 2" and under: ASTM F 437, listed
- B. Ferrous Water Pipe and Fittings
1. Cast Iron fittings (threaded): ASTM A 126
 2. Cast iron pipe (threaded): ANSI A40.5
 3. Cast iron water pipe: ASTM A377
 4. Ductile-iron water pipe: ANSI/AWWA C 151/A 21.51
 5. Ductile-iron water fittings: ANSI/AWWA C 110/A 21.10
 6. Malleable iron fittings (threaded): ASTM A 197
 7. Nipples pipe (threaded): FS WW-N-351a
 8. Stainless steel water pipe Grade H: ASTM A 268, See 303.8.4
 9. Steel couplings, threaded, black and galvanized: ASTM A 865
 10. Steel pipe black and galvanized: ASTM A 53
 11. Welded and seamless steel pipe: ASTM A 53
- C. NonFerrous Pipe and Fittings
1. Cast bronze fittings for flared copper tube: ANSI B16.26
 2. Cast bronze threaded fittings: ASME B16.15
 3. Cast bronze solder-joint pressure fittings: ANSI B16.18
 4. Cast copper alloy fittings for flared copper tubes: ASME B 16.26
 5. Pipe flanges and flanged fittings: ANSI B16.5
 6. Seamless brass tube: ASTM B 135
 7. Seamless copper pipe: ASTM B 42
 8. Seamless copper tube: ASTM B 75
 9. Seamless copper water tube types K, L, & M: ASTM B 88
 10. Seamless red brass pipe: ASTM B 43
 11. Seamless and welded copper distribution tube (type D): ASTM B 641
 12. Threadless copper pipe (TP): ASTM B 302
 13. Welded brass tube: ASTM B 587
 14. Welded copper tube: ASTM B 447
 15. Welded copper alloy UNS # C21000 water tube: ASTM B 642
 16. Wrought copper and copper-alloy solder-joint pressure fittings: ASME B 16.22 for copper water tube
 17. Wrought seamless copper and rectangular copper-alloy pipe and tube: ASTM B 251, square and tubing not applicable
 18. Valves-flanged threaded, and welding end: ANSI B 16.34
- D. Backflow Prevention Devices Materials Standard
1. Air gap standards: ASME A112.1.2
 2. Backflow preventers, double check valve assembly: ASSE 1015, ANSI/AWWA C510
 3. Backflow preventers with intermediate atmospheric vent: ANSI/ASSE 1012
 4. Backflow preventers, double check detector assembly: ANSI/ASSE 1048
 5. Backflow preventers, hose connection: ANSI/ASSE 1052
 6. Backflow preventers, reduced pressure detector assembly: ANSI/ASSE 1047
 7. Backflow preventers, reduced pressure principle assembly: ANSI/AWWA C511, ASSE 1013
 8. Dual check valve type backflow preventer: ASSE 1032, for carbonated beverage dispensers-post mix type
 9. Field test procedures for backflow preventer assemblies: ASSE 5010
 10. Manual for the selection, installation, maintenance, and field testing of backflow prevention devices: CAN/CSA B64.10

11. Vacuum breakers, Anti-Siphon, pressure type assembly (outdoor use): ASSE 1020
12. Vacuum breakers-atmospheric pipe applied: ANSI/ASSE 1001
13. Vacuum breakers, back siphonage, pressure type assembly (spill resistant): ANSI/ASSE 1056
14. Vacuum breakers, hose connections: ANSI/ASSE 1011
15. Vacuum breakers, laboratory faucet: ANSI/ASSE 1035
16. Vacuum breaker wall hydrants, fronts resistant automatic draining: ASSE 1019
17. Water closet flush tank fill valves (ballcocks): ASSE 1002

E. Valves Material Standards

1. Valves, bronze gate: MSS SP-80
2. Valves, cast iron gate: ASTM A 126
3. Valves, ball: MSS SP-72, MSS SP-110
4. Valves, resilient-seated gate: ANSI/AWWA C509

F. Temperature Control Device Standards

1. Individual shower control valves, anti-scald: ASSE 1016
2. Temperature actuated mixing valves for primary domestic use: ASSE 1017
3. Water supply valves, mixing valves and single control mixing valves: ASSE 1029

G. Potable Water Piping

1. All potable water pipes, pipe related products, and materials that join or seal pipes conform to ANSI/NSF 61.

1.7 DRAINAGE SYSTEM MATERIALS STANDARDS

A. NonMetallic Piping

1. Concrete drain tile: ASTM C 412
2. Concrete perforated: ASTM C 444
3. Concrete reinforced culverts: ASTM C 76, for storm drains only
4. Concrete reinforced sewer pipe: ASTM C 361, for storm drains only
5. Concrete sewer pipe: ASTM C 14, for storm drains only
6. Sewer manholes: ASTM C 478
7. Concrete (steel cylinder type): FS SS-P-381

B. Plastic Pipe and Fittings

1. Coextruded composite pipe: ASTM F 1488, See 303.8.3, 303.8.5, 704.1, 1101.5, 1103.2, 1103.4
2. Coextruded composite drain, waste, and vent pipe (DWV): ASTM F 1499, See 303.8.3, 303.8.5, 704.1, 1101.5, 1103.2, 1103.4
3. Coextruded PVC plastic pipe: ASTM F 891, See 303.8.3, 303.8.5, 704.1, 1101.5, 1103.2, 1103.4
4. Flexible elastomeric non-pressure joints: ASTM D 3212, See 303.8
5. Large diameter ribbed PVC sewer pipe and fittings: CAN/CSA-B182.4
6. Polyolefin laboratory drainage systems: CAN/CSA-B181.3
7. PVC-DWV pipe and fittings: ASTM D 2665, listed, See 303.8.3
8. Type PS 46 and type PS 115 sewer pipe (for outside building sewers, storm drains): ASTM F 789, See 704.1, 1101.4, 1103.2, 1103.4, ASTM D 2321, installation
9. Type PSM PVC sewer pipe and fittings (for outside building sewers, storm drains, and storm sewers): ASTM 3034, See 704.1, 1101.5, 1103.2, 1103.4, ASTM D 2321, installation
10. Type PSP PVC sewer pipe and fittings (for outside building sewers, storm drains, and storm sewers): ASTM D 2321, Installation
11. All plastic piping pipes, plastic plumbing piping components and related materials shall be listed as conforming with ANSI/NSF Standard 14.

C. Ferrous Pipe and Fittings

1. Cast iron soil pipe and fittings: ASTM A 74, CISPI HS

2. CI NO-HUB pipe and fittings: ASTM A 888, CISPI Std. 301
 3. Ductile-iron gravity sewer pipe: ASTM A 746
 4. Hubless cast iron sanitary system: CISPI Std. 310
 5. Manhole top frames and covers: ASTM A 48
- D. NonFerrous Pipe and Fittings
1. Cast copper alloy solder-joint drainage fittings: ASME B 16.23, for plumbing drainage waste and vents
 2. Cast copper alloy solder-joint fittings for solvent drainage systems: ANSI B 16.32
 3. Copper drainage tube DWV: ASTM B 306
 4. Welded copper and copper alloy heat exchanger tube: ASTM B 543
 5. Wrought copper and wrought copper alloy solder-joint drainage fittings for plumbing drainage waste and vents: ASME B 16.29
 6. Wrought copper and wrought copper alloy solder-joint fittings for solvent drainage systems: ANSI B 16.43
- E. Glass pipe
1. Borosilicate glass pipe and fittings for DWV applications: ASTM C 1053

PART 2 PRODUCTS

2.1 SANITARY SEWER PIPING - BURIED BEYOND 5 FEET OF BUILDING:

- A. Schedule 40 PVC/DWV
Fittings: Same as piping
Joints: Solvent welded

2.2 SANITARY SEWER PIPING - BURIED WITHIN 5 FEET OF BUILDING:

- A. Schedule 40 PVC/DWV
Fittings: Same as piping
Joints: Solvent welded

2.3 SANITARY SEWER PIPING, ABOVE GRADE:

- A. Schedule 40 PVC/DWV
Fittings: Same as piping
Joints: Solvent welded

2.4 WATER PIPING, ABOVE GRADE: Exterior water piping buried beyond 5' of building to be same as above grade.

- A. Copper Tubing: ASTM B88, Type L, hard drawn.
Fittings: ANSI/ASME B16.18, cast bronze solder-joint pressure fittings, or ANSI/ASME B16.22, wrought copper.
- B. All potable water pipes, pipe related products and materials that join or seal pipes and pipe related products shall be evaluated and listed as conforming with a national consensus product or material standard and ANSI/NSF Standard 61.

2.5 WATER PIPING, TRAP PRIMERS: Piping for trap primer piping below slab only.

- A. Soft Copper Tube: ASTM B 88, Types K and L, water tube, annealed temper.

2.6 FLANGES, UNION, AND COUPLINGS:

- A. Pipe Size two (2) Inches and Under: 150 psig malleable iron unions for threaded ferrous piping; bronze unions for copper pipe, solder joints.

- B. Pipe Size Over two (2) Inches: 150 psig forged steel slip-on flanges for ferrous piping; bronze flanges for copper piping; neoprene gaskets for gas service.
- C. Dielectric Connections: Unions with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.7 GATE VALVES

- A. Up to two (2) Inches: Bronze body, non-rising or rising stem and handwheel, inside screw, single double wedge or disc, solder or threaded ends. Nibco Model 113 Series, Crane Model 438 Series, Powell Model 2700, Hammond 2B 617 or approved equal.
- B. Over two (2) Inches: Iron body, bronze trim, non-rising or rising stem and handwheel, OS&Y, single wedge, flanged ends. Red and White 415/421, NIBCO F619/F617, Crane 461/465 1/2 or approved equal.

2.8 GLOBE VALVES:

- A. Up to 2 Inches: Bronze body, rising stem and handwheel inside screw, renewable composition disc, solder screwed ends, with backseating capacity. Nibco Model 211 Series, Crane Model 1 Series, Powell Model 150, Hammond 1.413, Red White 211/212 or approved equal.
- B. Over 2 Inches: Iron body, bronze trim, rising stem and handwheel, OS&Y, plug-type disc, flanged ends. Red and White Fig 400 or NIBCO F718-B, Crane 351 or approved equal.

2.9 BALL VALVES:

- A. Up to 2 Inches: Bronze or stainless steel body, stainless steel ball, teflon seats and stuffing box ring, lever handle and balancing stops, solder threaded ends with union. Nibco Model 580 Series, Crane Model 2330 Series, Red White 5092/5095 or approved equal.
- B. Over 2 inches: Cast steel body, chrome plated steel ball teflon seat and stuffing box seals, lever handle or gear drive handwheel for sizes 10 inches and over, flanged.

2.10 BUTTERFLY VALVES:

- A. Iron body, bronze disc, resilient replaceable seat for service to 180-degrees F, or lug end butterfly, 10 position over handle or infinite position lever handle with memory stop.

2.11 SWING CHECK VALVES:

- A. Up to 2 inches: Bronze 45 degree swing disc, solder or screwed ends. Nibco Model 413 Series, Crane Model 37 Series, Red White 236/237 or approved equal.
- B. Over 2 inches: Iron body, bronze trim, 45 degrees swing disc, renewable disc and seat, flanged ends. Red White 435, Nibco F918, Crane 373 or approved equal.

2.12 SPRING LOADED CHECK VALVES:

- A. Iron body, bronze trim, spring loaded, bronze disc, wafer.
- B. Red White 442, Nibco W920W, Stockham W6-970 or approved equal.

PART 3 EXECUTION

3.1 PREPARATION:

- A. Ream pipe and tube ends. Remove burrs. Bevel end Ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATIONS:

- A. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- B. Route piping in orderly manner and maintain gradient.
- C. Install piping to conserve building space and not interfere with use of space.
- D. Group piping whenever practical at common elevations.
- E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- F. Provide clearance for installation of insulation and access to valves and fittings.
- G. Provide access where valves and fittings are not exposed.
- H. Slope water piping and arrange to drain at low points.
- I. Establish elevations of buried piping outside the building to insure not less than 3 feet of cover.
- J. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- K. Prepare pipe, fittings, supports, and accessories not prefinished, ready for finish painting.
- L. Establish invert elevations, slope all drainage piping 4 inches and larger to 1/8 inch per foot minimum. All drainage piping 3 inches and smaller shall be sloped to 1/4 inch per foot minimum.
- M. Install bell and spigot pipe with bell end upstream.
- N. Install valves with stems upright or horizontal, not inverted.
- O. Provide one plug cock wrench for every ten plug cocks sized 2 inches and smaller, minimum of one. Provide one plug cock wrench for each plug cock sized 2-1/2 inches and larger.
- P. In pipe 3 – inch nominal diameter or less, cleanouts shall be located at not more than 50ft.intervals
- Q. In pipe 4 – inches nominal diameter through 6 inches nominal diameter, cleanouts shall be located at not more than 80ft. intervals
- R. Each building drain shall be provided with a cleanout within 6ft. of the junction of the building drain and building sewer.

3.3 APPLICATION:

- A. Grooved mechanical couplings and fasteners not allowed.

- B. Install unions downstream of valves and at equipment or apparatus connections.
- C. Install brass male adapters each side of valves in copper piped system. Sweat solder adapters to pipe. All joints in potable lines to be lead free.
- D. Install gate, ball, butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- E. Install globe, ball, butterfly valves for throttling, bypass, or manual flow control services.
- F. Provide spring loaded check valves on discharge of water pumps.

3.4 TEST

- A. Upon completion of the domestic water piping system, it shall be tested and proved tight under a water pressure not less than 200 psi. The water used for testing shall be obtained from a potable source of supply. This pressure test shall be performed before the disinfection of the domestic water piping system is started. This test shall conform to the Louisiana State Plumbing Code
- B. Upon completion of the sanitary sewer piping system the contractor shall perform a water test to prove that the system is tight and with out leaks. No section of the piping system shall be tested with less than 10 ft head of water. The pressure shall be kept on the system for a time no less that 1 hour. This test shall conform to the Louisiana State Plumbing Code.
- C. Upon completion of the sanitary vent piping system the contractor shall perform a pressure test to prove that the system is tight and is with out leaks. This test shall conform to the Louisiana State Plumbing Code.
- D. All Gas piping shall be tested in accordance to NFPA 54.
- E. Prior to any test, the contractor shall notify the Architect in writing a minimum of 5 business days, the date and time the test will take place. No exceptions. After the completion of the test but before the building is substantially complete the contractor shall submit a written report with the following information for each test performed.
 - 1. Project Name
 - 2. Project Location
 - 3. Plumbing Contractor Name, Address and Contact Information
 - 4. Identification of test performed.
 - 5. Time and Date test was started
 - 6. Time and Date test was completed.

3.5 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM:

- A. Prior to starting work, verify system is complete, flushed and clean.
- B. Option 1: The system shall be filled with a solution containing 50 ppm of available chlorine and allowed to stand 6 hours before flushing and returning to service.
- C. Option 2: The system shall be filled with a solution containing 100 ppm of available chlorine and allowed to stand 2 hours before flushing and returning to service.
- D. Prior to the disinfection of the domestic water piping system the contractor shall inform the architect in writing the date and time the disinfection will take place. After the completion of the disinfection of the domestic water piping system but before the building is substantially completed the contractor shall submit a written report with the following information.
 - 1. Project Name
 - 2. Project Location

3. Plumbing Contractors Name, Address, and contact information
4. Chemicals used in the disinfection process.
5. Time and Date disinfection process was started
6. Time and Date disinfection process was completed

3.6 SERVICE CONNECTIONS:

- A. Provide new sanitary and storm sewer services and tie into existing as shown on plans. Before commencing work check invert elevations required for sewer connections, confirm inverts and insure that these can be properly connected with slope for drainage and cover to avoid freezing. Contractor to tie in existing services as shown on drawings.
- B. Tie domestic water into existing services as shown on drawings. Provide sleeve in wall for service main and support at wall with reinforced concrete bridge. Caulk enlarged sleeve and make watertight with pliable material. Provide 18-gauge galvanized sheet metal sleeve around service main to 6 inches above floor and 6 feet minimum below grade. Size for minimum of 2 inches of loose batt insulation stuffing. Contractor shall utilize and tie in existing water lines as indicated on the drawings.
- C. Tie new gas service into existing onsite. Coordinate connection with gas service provider.

END OF SECTION

SECTION 221010

PLUMBING SPECIALTIES

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Floor drains
- B. Trap Primers
- C. Cleanouts
- D. Backflow preventors
- E. Water hammer arrestors
- F. Hose bibbs hydrants

1.2 RELATED WORK

- A. Section 230529 - Supports and Anchors
- B. Section 221000 - Plumbing Piping
- C. Section 224000 - Plumbing Fixtures

1.3 REFERENCES

- A. ANSI/ASSE 1012 - Backflow Preventers with immediate Atmospheric Cent.
- B. ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.
- C. ANSI/ASSE 1013 - Backflow Preventers, Reduced Pressure Principle.
- D. ANSI/ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types.
- E. ANSI A112.21.1 - Roof Drains
- F. ANSI A112.26.1 - Water Hammer Arrestors
- G. PDI WH-201 Water Hammer Arrestors

1.4 QUALITY ASSURANCE

- A. Manufacturer: For each product specified, provide components by same manufacturer throughout.

1.5 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 013000.
- B. Include component sizes, rough-in requirements, service sizes, and finishes.

PART 2 PRODUCTS

2.1 FLOOR DRAINS

- A. Floor Drain (FD): ANSI A112.21.1; lacquered cast iron two piece body with double drainage flange, weep holes, reversible clamping collar, square adjustable nickel- bronze strainer, and trap primer connection; Wade model 1100G, Zurn model Z415s or Smith model 2005.
- B. All floor drains installed shall have trap primers.

2.2 TRAP PRIMERS

- A. Trap primers shall be PPP, Inc. Prime-Rite 500 with AG-500 air gap fitting. Distribution unit may be used for multiple floor drains. Trap primers shall be installed as per manufacturer recommendations and in strict accordance with the Louisiana Plumbing Code. Elastomeric flexible type trap guards will not be allowed on this project.

2.3 ROOF DRAINS

- A. Roof Drains (RD): Duco Cast Iron body with adjustable extension sleeve, reversible collar, combined flashing clamp, under deck clamp, and gravel stop, with cast iron dome. Coordinate outlet with storm sewer piping. Wade model 3000-ADF, Zurn model Z100, or Smith model 1015.

2.4 EMERGENCY ROOF DRAIN

- A. Emergency roof drain (ERD): Duco cast iron body with adjustable extension sleeve, 2" high combination membrane flashing clamp/gravel guard with cast iron dome drain. Coordinate outlet size with storm sewer piping. Zurn Z-100, Wade, or Smith.

2.5 FLOOR SINK

- A. Floor sink (FS): 12"x12" floor sink with square nickel bronze top, 8" deep, aluminum dome strainer. Zurn Z1901, Wade 9144, or Smith 300.

2.6 CLEANOUTS

- A. Exterior Surfaced Areas: As detailed on Plans.
- B. Interior Finished Floor Areas: Lacquered cast iron, two piece body with double drainage flange, weep holes, reversible clamping collar, and adjustable nickel- bronze strainer, square with scoriated cover in service areas and square with depressed cover to accept floor finish in finished floor areas; Model W-6000 manufactured by Wade or Model ZN-1400 manufactured by Zurn or 4000 Series manufactured by Smith.
- C. Interior Finished Wall Areas: Line type with lacquered cast iron body and round epoxy coated gasketed cover, and round stainless steel access cover secured with machine screw; Model W-8460-R manufactured by Wade or Model ZN-1445-1 manufactured by Zurn or Model 4532 manufactured by Smith.
- D. Interior Unfinished Accessible Areas: Caulked or threaded type, provide bolted stack cleanouts on vertical rainwater leaders.
- E. Acceptable Manufacturers
 1. Wade 6000
 2. Zurn 1400
 3. Substitutions: Under provisions of Instructions To Bidders.

2.7 BACKFLOW PREVENTERS

- A. Pressure Backflow Preventers: ANSI/ASSE 1013; bronze body with bronze and plastic internal parts and Stainless steel springs; two independently operating, spring loaded check valves; diaphragm type differential pressure relief valve located between check valves; third check valve which opens under back pressure in case of diaphragm failure; non-threaded vent outlet; assembled with two gate valves, strainer, and four test cocks.
- B. Acceptable Manufacturers
 - 1. Watts Model 909
 - 2. Wilkins Model 375
 - 3. Substitutions: Under provisions of Instructions To Bidders.

2.8 WATER HAMMER ARRESTORS

- A. ANSI A112.26.1; sized in accordance with PDI WH-201, pre-charged suitable for operation in temperature range - 100 to 300 degrees F (-73 to 49 Degrees C) and maximum 250 psig (1700 kpa) working pressure.
- B. Acceptable Manufacturers
 - 1. Wade Model W-5, W-10, W-20
 - 2. Zurn Model Z-1700-100, 200, 300
 - 3. Smith Model 5000
 - 4. Substitutions: Under provisions of Instructions To Bidders.

PART 3 EXECUTION

3.1 PREPARATION

- A. Coordinate cutting forming of roof floor construction to receive drains to required invert elevations.

3.2 INSTALLATION AND APPLICATION

- A. Install specialties in accordance with manufacturer's instructions to permit intended performance.
- B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Insure clearance at cleanout for rodding of drainage system.
- C. Encase exterior cleanouts in concrete flush with grade.
- D. Install water hammer arrestors complete with accessible isolation valve.
- G. In pipe 3 – inch nominal diameter or less, cleanouts shall be located at not more than 50ft.intervals
- H. In pipe 4 – inches nominal diameter through 6 inches nominal diameter, cleanouts shall be located at not more than 80ft. intervals
- I. Each building drain shall be provided with a cleanout within 6ft. of the junction of the building drain and building sewer.

END OF SECTION

SECTION 224000

PLUMBING FIXTURES AND TRIM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Plumbing Fixtures and Trim

1.2 RELATED WORK

- A. Section 230000 - General Mechanical
- B. Section 221000 - Plumbing Piping
- C. Section 221010 - Plumbing Specialties

1.3 SUBMITTALS

- A. Furnish and install plumbing fixtures as shown on the accompanying drawing and in accordance with the approved rough-in drawings. This will include service sinks, lavatories, water closets, urinals, etc., with all brass in connection with supply tubing, traps, escutcheons, stop and basin cocks, etc. All fixtures shall be new and must be delivered to the building properly crated and in perfect condition.
- B. All brass must be best quality. All brass pipe to be seamless brass tubing and all fixture traps shall be heavy with C.O. plugs. Nipples shall be extra heavy. Lightweight goods will not be accepted. All exposed metal on fixtures shall be C.P. or Chromard. All "P" traps shall be complete with cleanout plug.
- C. Contractor shall submit in his fixture brochure for approval, a rough-in sheet of each fixture and indicate any variation required for the fixtures. Fixtures are to be roughed-in in accordance with these approved rough-in sheets and anchored so that piping cannot be moved.

1.4 JOB CONDITIONS

- A. Check millwork shop drawings. Conform location and size of fixtures and openings before rough-in and installation.

PART 2 – PRODUCTS – see plans

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install furnish and install all plumbing fixtures and accessories according to manufacturer's instruction and according to national, state and local codes governing the various systems. Carefully review the Architectural floor plans and millwork details to determine exact number of all fixtures, outlets, and accessories required. Coordinate all fixtures, outlets, drains, accessories, etc., prior to submitting shop drawings.
- B. Install each fixture in accordance with rough-in drawings as per manufacturers recommendations. At completion thoroughly clean plumbing fixtures and equipment. Anchor fixtures rigidly; anchor piping in walls so that piping cannot be moved.
- C. Provide chrome plated rigid or flexible supplies to fixtures with stops, reducers and escutcheons.

- D. Solidly attach floor water closets to floor with lag screws and finishing caps.
- E. Install each fixture with trap, easily removable for servicing and cleaning.
- F. All fixtures supplied with domestic water, hot or cold, shall be installed with integral stops on all supply lines.
- G. Mount fixtures to the following heights above finished floor:
 - 1. Water Closets:
 - a. Standard 15" to top of bowl rim
 - b. Handicapped 18" to top of seat
 - 2. Urinal:
 - a. Standard 22" to top of bowl rim
 - 3. Lavatories:
 - a. Handicapped 34" to top of basin rim
 - 4. Water Closet Flush Valves:
 - a. Standard 11" min. above bowl rim'
- H. Contractor shall caulk all joints at walls and floors with plumbing fixtures.
- I. Contractor shall provide approved ADA drain and water line insulation covers on all exposed services for lavatories and sinks. Truebro Lav Guard or approved equal.

3.2 FIXTURE ROUGH-IN SCHEDULE:

- A. Rough-in fixture piping and size connections shall be in accordance with the following table of minimum sizes for particular fixtures unless noted different on the drawing:

PLUMBING FIXTURE ROUGH-IN SCHEDULE

<u>DESCRIPTION</u>	<u>C.W.</u>	<u>H.W.</u>	<u>WASTE</u>	<u>VENT</u>
WATER CLOSET (TANK)	1/2"	-	4"	3"
WATER CLOSET (FLUSH VALVE)	1"	--	4"	3"
URINAL (FLUSH VALVE)	3/4"	--	2"	1-1/2"
LAVATORY	1/2"	--	2"	1-1/2"
SERVICE SINK	1/2"	1/2"	3"	2"
ELECTRIC WATER COOLER	1/2"	--	2"	1-1/2"
SINK	1/2"	1/2"	2"	1-1/2"
HOSE BIBB	3/4"	--	--	--
2" FLOOR DRAIN	--	--	2"	1-1/2"
3" FLOOR DRAIN	--	--	3"	2"
3" HUB DRAIN	--	--	3"	2"

WATER PIPE SIZING TABLE

UNLESS SHOWN OTHERWISE, DOMESTIC WATER LINES SHALL RUN CONCEALED OVERHEAD AS DESIGNATED IN PLUMBING FIXTURE SCHEDULE AND BE SIZED ACCORDING TO TABLE BELOW.

PLANS AND RISER DIAGRAMS DO NOT NECESSARILY SHOW ALL PIPING RUNS. INSTALL A FACTORY SHOCK ABSORBER AT TOP OF EACH FIXTURE GROUP AND ALSO AT WATER HEATERS.

NUMBER OF FIXTURES*

PIPE SIZE (IPS)

2 OR LESS	1/2"
3 TO 5	3/4"
6 TO 10	1"
11 TO 15	1-1/4"
16 TO 28	1-1/2"

*FLUSH VALVE WATER CLOSET IS EQUIVALENT TO SIX (6) FIXTURES SIZES INDICATED ABOVE ARE MINIMUM SIZES TO BE USED UNLESS OTHERWISE STATED

END OF SECTION

SECTION 230000

GENERAL MECHANICAL

PART 1 GENERAL CONDITIONS

1.1 WORK INCLUDED

- A. The general conditions of the general specifications are made a part of these specifications and apply the same as if attached hereto. The contractor should, before bidding, read and thoroughly understand all general conditions, priority and scheduling.

1.2 SCOPE OF WORK

- A. This section calls for the furnishing of labor, materials, equipment, and all the services, and of performing all operations required for the complete mechanical systems as hereinafter specified and/or shown on the accompanying drawings.

1.3 GENERAL REQUIREMENTS

- A. Contractor shall install his work to meet the existing conditions as found at buildings and property, and to accommodate work of other trades. This contractor shall be responsible for timely placing of sleeves in forms before concrete is poured. Cooperate with the general contractor and place pipes and ducts in floors, walls, furred spaces, etc., so there will be no delay. Sheet metal or iron pipe sleeves shall be provided for pipes passing through floors, wall or partitions.
- B. Contractor shall furnish and properly install materials, devices, equipment, insulation, controls, appurtenances, etc., mentioned in these specifications and/or shown on plans or required to make a complete and satisfactory installation in working order whether fully shown or not.
- C. Contractor should visit the site and acquaint himself thoroughly with conditions governing installation of his work.
- D. All other plans shall be checked in relation to these plans so that all conditions will be furnished and installed in this contract to provide complete and satisfactory systems.

1.4 LAWS, RULES, REGULATIONS, FEES, ETC.

- A. The entire mechanical work shall comply with rules and regulations of the local and state authorities having jurisdiction including the State Fire Marshal and the State Board of Health. All modifications required by the said authorities at any time shall be made by the mechanical contractor without additional charge. In cases where alterations to or deviations from this specification and accompanying plans are required by the authorities, contractor shall report same to the Architect and obtain his approval before work is started.

1.5 DRAWINGS

- A. Plans and detail sketches are submitted to limit, explain, and define structural conditions, specified requirements, pipe sizes, and manner of erecting work. Structural or other conditions may require certain deviations from manner of installation shown, and such deviations shall be made as required, but specified sizes and requirements necessary for satisfactory operation shall remain unchanged.
- B. It may be necessary to shift or to change routing of ducts and or piping and this shall be done, but such changes must be referred to Architect for approval before proceeding. Extra charges will not be allowed for these changes.

- C. Typical details are shown on plans, and in any cases where Contractor is not certain about the method of installation of this work, he shall ask for details, lack of details will not be an excuse for improper installation.
- D. Contractor bidding on this portion of the work must be fully experienced in installations of equal size, complexity and quality. In bidding, he acknowledges that he fully understands the scope of the work and design and has the ability, for the contract price to assemble and install the equipment, piping, and ductwork shown or specified, so as to mold same into a satisfactory workable system and arrangement, without responsibility for capacities and sizes set by these documents.
- E. Contractor shall recognize that the amount of information and detail that could be provided in Contract Documents is limitless and could extend into every minute detail, step, sequence, and operation to a point where only workmen would be required, without drawing on ability experience, and ingenuity of the Contractor.

1.6 MATERIALS

- A. Where directed by the Architect, Contractor shall submit sample for approval before proceeding.

1.7 STANDARDS

- A. In general, standards for products and workmanship shall be as described in each individual section.
- B. The standards referred to, except as modified in these specifications shall have full force and effect as though printed in these specifications. These standards are not furnished to bidders for the reason that the manufacturers and trades involved are assumed to be familiar with their requirements. The Architect will furnish, upon request, information as to how copies of the standards referred to may be obtained.
- C. Notwithstanding any reference in this section of the specifications to any article, device, product, material, fixture, form or type of construction by name, make or catalogue number, such references shall be interpreted as establishing a standard of quality and shall not be construed limiting competition and the Contractor in such cases, may at his option, use any article, device, product, material, fixture, form or type of construction which in the judgment of the Architect, expressed in writing, is equal to that specified.

1.8 MATERIALS SPECIFIED OR SUBSTITUTED (Prior Approvals)

- A. Refer to Instructions to Bidders.

1.9 SHOP DRAWINGS

- A. Before proceeding with the work, contractor shall make complete shop and working drawings of such apparatus or connections as directed by the Architect and/or hereinafter specified. These drawings shall show construction details and dimensions of each piece of equipment so drawn.
- B. Architects approval of shop drawings shall not relieve the Contractor from responsibility of incorrectly figured dimensions or any other errors in these drawings or specified even though approved by the Architect, shall not relieve this Contractor from furnishing and erecting same.
- C. Ten (10) sets of prints of shop drawings shall be submitted to Architect for approval. These prints shall be supplied as part of this contract. Submit all shop drawings at the same time or

as soon as practical after award of the contract. No separate items will be accepted.

- D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such accessories shall be furnished if no specific reference to them is made in the specifications.

1.10 CUTTING AND PATCHING

- A. All cutting necessary for this work will be done by this Contractor at his own expense, but all patching shall be done by the General Contractor. No beams or joists shall be cut without prior approval of Architect. After initial resurfacing has been done any further cutting, patching or painting shall be done at the expense of this Contractor.

1.11 INTERFERENCES

- A. The drawings are generally diagrammatic and this Contractor shall harmonize his work with that of the different trades so that interferences of the different equipment, piping, etc., shall be installed so as to function properly. In the case where interference develops, the Architect is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

1.12 EXCAVATION AND BACKFILL

- A. This Contractor shall do all excavating required to lay the specified services and after same have been laid, he shall do all backfilling to the satisfaction of all parties concerned and shall cart away from the premises all unnecessary dirt, rubbish, etc., as directed. Backfill shall be well tamped. All backfill shall be done according to the "Compaction And Backfill" section of these specifications.

1.13 SPACE REQUIREMENTS

- A. Contractor shall check all plans pertaining to this job so as to be fully aware of the space limitations for all various items of equipment. Equipment is not to be bid on, submitted for preliminary approval nor placed on the job if it is so bulky and large that adequate access for proper maintenance and servicing cannot be achieved in the space provided.

1.14 FOUNDATIONS AND SUPPORTS

- A. This contractor shall furnish and install foundations and supports of concrete or steel shapes for equipment requiring same, unless specifically indicated otherwise or specified.
- B. All floor mounted mechanical equipment shall be mounted on 4" high concrete housekeeping pad unless specifically shown otherwise on plans. Refer to plans for special requirements for foundations and supports.

1.15 HANGERS, ESCUTCHEONS, ETC.

- A. See Section 230529 – Supports and Anchors.
- B. Mechanical Contractor shall furnish and install all thimbles, inserts and other requirements necessary for the support of his equipment and piping. Assist and cooperate with other trades in locating and placing these items.

1.16 CEILING AND WALL ACCESS PANEL

- A. Factory made access doors and frames, prime coat finish, screw driver latch(s) of suitable size as required.

- B. Access panels in rated ceiling to have same rating as ceiling.
- C. Where valves, dampers, controls, fire dampers, smoke dampers, and detectors, reheat coils, etc. are concealed in walls or non-accessible ceilings, install factory made access doors and frames.

1.17 DUCTWORK ACCESS PANELS

- A. Access panels in ductwork to be double wall type with insulation sandwiched in between, same insulation value as adjacent ductwork.

1.18 SIPHON PREVENTERS

- A. Furnish and install approved type siphon preventors on all equipment and fixtures in such a manner as to prevent water being siphoned back into the water supply in the event the water supply is shut off.

1.19 FLAME SPREAD PROPERTIES OF MATERIALS

- A. All materials and adhesives used for acoustical linings, jackets and insulation shall comply with requirements of NFPA 90A and 90B and UL guide # 40V.8.15. Products exceeding a flame spread rating of 25, or a smoke developed rating of 50, as determined by ASTM Test Method E-84 are prohibited. Adhesives and sealers shall be fire retardant and fire resistant when dry. Flame proofing treatments which are subject to decomposition, deterioration, or the effects of moisture are prohibited.

1.20 DOMESTIC AND FIRE WATER TIE-IN

- A. Contractor shall provide any necessary meters and tap fees for domestic or fire water tie-ins to utility companies. All domestic and fire water taps shall have aboveground reduced pressure back flow preventors near the tie-in point. Coordinate with Engineer exact location.
- B. All backflow preventors shall be heat traced and insulated with 1-1/2" fiberglass insulation with water tight aluminum jacket.

1.21 PROTECTION OF EQUIPMENT

- A. See individual sections for protection of equipment.
- B. This Contractor shall at all times take such precautions as may be necessary to properly protect his equipment from damage. Failure on the part of the Contractor to comply with the above to the entire satisfaction of the Architect will be sufficient cause for the rejection of the particular piece of equipment in question.

1.22 TESTING

- A. All pressure lines, unless elsewhere specified, shall be tested under 150# hydrostatic pressure unless rated pressure is less for a minimum of 5 hours. Contractor shall provide valve at farthest point in line to bleed off air and for inspection.
- B. Notice shall be given the Architect before tests are made, the test is not to be drawn off pipes and pipes are not to be covered or insulated until filled pipes have been examined and testing approved by the Architect.
- C. In case of defects, they shall be made good to the satisfaction of the Architect and work retested. All such work shall be done by the Contractor with no additional expense to the Owner.

- D. Contractor shall make any other such tests as may be called for by the Architect, and all other tests so called for elsewhere in these specifications.

1.23 CLEANING AND ADJUSTING

- A. Before receiving final approval from the Architect, the Contractor shall clean out all lines; adjust all valves, control equipment and other equipment. Clean all pipe and equipment and leave the entire installation in good working order. All heaters, fans, grilles, controls, etc., shall be adjusted to perform in correct and satisfactory manner, with sequences, etc., as called for in the specifications hereinafter specified and on plans.

1.24 PAINTING

- A. Refer to Section 099000 – Painting and Coating and 230553 – Mechanical Identification for painting requirements.

1.25 MOTORS, MOTOR STARTERS AND ELECTRICAL WORK

- A. Refer to Section 230513 - Motors.
- B. Motors shall be suitable for voltage indicated on the plans, plus or minus 10% and be designed for constant operation at 40 degrees C ambient, 65 degrees C rise for class A, 90 degrees C rise for Class B, etc. Electrical equipment furnished under this contract shall meet standards as set forth by NEMA and NEC requirements. All electrical equipment shall be UL labeled.

1.26 PARTS LIST AND INSTRUCTION MANUAL

- A. See individual sections for specific instructions.
- B. This Contractor shall deliver to the Architect three (3) copies of printed instructions relating to operating, proper maintenance and repair parts list indicating the various parts by name, number and diagram for each piece of equipment installed. Test and balance report shall also be included in parts list and instruction manual.
- C. The shop drawings, parts list, and maintenance and repair instructions shall be neatly bound in a canvas-covered notebook and turned over to the Architect before acceptance of the work.

1.27 GUARANTEE

- A. Contractor shall guarantee materials, equipment and workmanship installed and performed under this contract for a period of one (1) year from date of the final completion and official acceptance of the contract.
- B. He shall furnish free of charge to the Owner all materials and labor necessary to comply with the above guarantee, which shall be based on defective materials and/or workmanship, and on such basis shall be responsible if a deficiency is found, for any adjustment, replacement, or correction which may be necessary to replace the project to first class condition. This guarantee shall include refrigerant charges, but shall not include the changing of filters.

1.28 RECORD DRAWINGS

- A. The Contractor shall maintain a set of record drawings on-site throughout the construction. The record drawings shall reflect accurate dimensional record of all underground, buried, above ceiling, or otherwise concealed work.

- B. The Contractor shall maintain these record documents and keep them up-to-date daily.

END OF SECTION

SECTION 230500

BASIC MECHANICAL MATERIALS AND METHODS

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Piping materials and installation instructions common to most piping systems.
 - 2. Dielectric fittings.
 - 3. Mechanical sleeve seals.
 - 4. Sleeves.
 - 5. Escutcheons.
 - 6. Grout.
 - 7. Mechanical demolition.
 - 8. Equipment installation requirements common to equipment sections.
 - 9. Concrete bases.
 - 10. Supports and anchorages.

1.2 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.
- E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.3 SUBMITTALS

- A. Welding certificates.

1.4 QUALITY ASSURANCE

- A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."
- B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
 - 1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
 - 2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.
- C. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are

appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

PART 2 PRODUCTS

2.1 PIPE, TUBE, AND FITTINGS

- A. Refer to individual Division 23 piping Sections for pipe, tube, and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.2 JOINING MATERIALS

- A. Refer to individual Division 23 piping Sections for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated.
- C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
- D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- E. Brazing Filler Metals: AWS A5.8, BCuP Series or BAg1, unless otherwise indicated.
- F. Welding Filler Metals: Comply with AWS D10.12.
- G. Solvent Cements for Joining Plastic Piping:
 - 1. ABS Piping: ASTM D 2235.
 - 2. CPVC Piping: ASTM F 493.
 - 3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
 - 4. PVC to ABS Piping Transition: ASTM D 3138.

2.3 DIELECTRIC FITTINGS

- A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
- B. Insulating Material: Suitable for system fluid, pressure, and temperature.
- C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig (1725-kPa) minimum working pressure at 180 deg F (82 deg C).
- D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig (1035- or 2070-kPa) minimum working pressure as required to suit system pressures.
- E. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).
- F. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).

2.4 MECHANICAL SLEEVE SEALS

- A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.
- B. Sealing Elements: NBR interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
- C. Pressure Plates: Carbon steel. Include two for each sealing element.
- D. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.5 SLEEVES

- A. Galvanized-Steel Sheet: 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint.
- B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.
- C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.
 - 1. Underdeck Clamp: Clamping ring with set screws.
- E. Molded PVC: Permanent, with nailing flange for attaching to wooden forms.
- F. PVC Pipe: ASTM D 1785, Schedule 40.
- G. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

2.6 ESCUTCHEONS

- A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
- B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.
- C. One-Piece, Cast-Brass Type: With set screw.
 - 1. Finish: Polished chrome-plated and rough brass.
- D. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.
 - 1. Finish: Polished chrome-plated and rough brass.

2.7 GROUT

- A. Description: ASTM C 1107, Grade B, non-shrink and nonmetallic, dry hydraulic-cement grout.
 - 1. Characteristics: Post-hardening, volume-adjusting, non-staining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
 - 2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.
 - 3. Packaging: Premixed and factory packaged.

PART 3 EXECUTION

3.1 MECHANICAL DEMOLITION

- A. Refer to Division 1 Sections "Cutting and Patching" and "Selective Demolition" for general demolition requirements and procedures.
- B. Disconnect, demolish, and remove mechanical systems, equipment, and components indicated to be removed.
 - 1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - 2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
 - 3. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - 4. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
 - 5. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - 6. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - 7. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
- C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Install piping according to the following requirements and Division 23 Sections specifying piping systems.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping to permit valve servicing.
- G. Install piping at indicated slopes.
- H. Install piping free of sags and bends.
- I. Install fittings for changes in direction and branch connections.
- J. Install piping to allow application of insulation.

- K. Select system components with pressure rating equal to or greater than system operating pressure.
- L. Install escutcheons for penetrations of walls, ceilings, and floors.
- M. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.
- N. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Install steel pipe for sleeves smaller than 6 inches (150 mm) in diameter.
 - 2. Install cast-iron "wall pipes" for sleeves 6 inches (150 mm) and larger in diameter.
 - 3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- O. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- P. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 7 Section "Through-Penetration Firestop Systems" for materials.
- Q. Verify final equipment locations for roughing-in.
- R. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.3 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and Division 15 Sections specifying piping systems.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
- E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

- F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.
- H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
- I. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 - 1. Comply with ASTM F 402, for safe-handling practice of cleaners, primers, and solvent cements.
 - 2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 Appendixes.
 - 3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
 - 4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
 - 5. PVC Non-pressure Piping: Join according to ASTM D 2855.
 - 6. PVC to ABS Non-pressure Transition Fittings: Join according to ASTM D 3138 Appendix.
- J. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.
- K. Plastic Non-pressure Piping Gasketed Joints: Join according to ASTM D 3212.
- L. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.
 - 1. Plain-End Pipe and Fittings: Use butt fusion.
 - 2. Plain-End Pipe and Socket Fittings: Use socket fusion.
- M. Fiberglass Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

3.4 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
 - 1. Install unions, in piping NPS 2 (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment.
 - 2. Install flanges, in piping NPS 2-1/2 (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment.
 - 3. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.
 - 4. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.5 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

- A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

- B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
- C. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
- D. Install equipment to allow right of way for piping installed at required slope.

3.6 CONCRETE BASES

- A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.
 1. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger in both directions than supported unit.
 2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of the base.
 3. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
 4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 5. Install anchor bolts to elevations required for proper attachment to supported equipment.
 6. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
 7. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete and reinforcement.

3.7 ERECTION OF METAL SUPPORTS AND ANCHORAGES

- A. Refer to Division 5 Section "Metal Fabrications" for structural steel.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.
- C. Field Welding: Comply with AWS D1.1.

3.8 ERECTION OF WOOD SUPPORTS AND ANCHORAGES

- A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor mechanical materials and equipment.
- B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.
- C. Attach to substrates as required to support applied loads.

3.9 GROUTING

- A. Mix and install grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors.
- B. Clean surfaces that will come into contact with grout.
- C. Provide forms as required for placement of grout.

- D. Avoid air entrapment during placement of grout.
- E. Place grout, completely filling equipment bases.
- F. Place grout on concrete bases and provide smooth bearing surface for equipment.
- G. Place grout around anchors.
- H. Cure placed grout.

END OF SECTION

SECTION 230513

MOTORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Single phase electric motors.
- B. Three phase electric motors.

1.2 RELATED WORK

- A. Section 232123 - Pumps

1.3 REFERENCES

- A. AFBMA 9 - Load Ratings and Fatigue Life for Ball Bearings.
- B. AFBMA 11 - Load Ratings and Fatigue Life for Roller Bearings.
- C. ANSI/IEEE 112 - Test Procedure for Polyphase Induction Motors and Generators.
- D. ANSI/NEMA MG 1 - Motors and Generators
- E. ANSI/NEMA 70 - National Electrical Code

1.4 SUBMITTALS

- A. Submit product data under provisions of Sections 013000 - Administrative Requirements & 230000 – General Mechanical.
- B. Submit test results verifying nominal efficiency and power factor for three phase motors larger than 5 horsepower.

1.5 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Section 017000 - Execution Requirements.
- B. Include assembly drawings, bearing data including replacement sizes, and lubrication instructions.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacture of electric motors for commercial use, and their accessories, with documented product development, testing, and manufacturing experience.

1.7 REGULATORY REQUIREMENTS

- A. Conform to ANSI/NFPA 70.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 016000 – Product Requirements.

- B. Store and protect products under provisions of Section 016000 – Product Requirements.
- C. Protect motors stored on site from weather and moisture by maintaining factory covers and suitable weather-proof covering. (For extended outdoor storage, remove motors from equipment and store separately).

1.9 WARRANTY - See General Section 230000– General Mechanical.

PART 2 PRODUCTS

2.1 MOTORS

- A. Motors controlled by VFD's shall comply with NEMA MG1, Part 31, Definite Purpose Inverter Fed Motors (withstand repeated voltage peaks of 1600V with rise times of 0.1 microseconds and greater).
- B. Starters for single phase motors which are not automatically started shall be manual type with melting alloy thermal overload protection and pilot light. Starters for automatically controlled single phase motors shall be magnetic type with NEMA rated AC magnetic contactor, melting alloy thermal overloads and pilot light.
- C. Starters for three phase motors 25 horsepower and below shall be combination type starter/disconnect, full voltage non reversing (FVNR), with magnetic NEMA rated contactors rated for horsepower of motor served, adjustable trip magnetic circuit breaker disconnect (circuit breaker, not a fused switch) capable of being padlocked in the open position, 10K a/c minimum fault rating with higher rating when necessary due to available fault levels. Starters shall have a fused 100VA minimum control transformer (120V unless required otherwise), HOA switch, push to test operating pilot light, solid state overload relays set for actual motor nameplate full load amps, phase failure and phase reversal protection relay, minimum two NO. and two N.C auxiliary contacts and terminal blocks factory prewired for field wiring. Starters shall be housed in a NEMA 1 enclosure for indoor locations and NEMA 3R enclosure for outdoor or wet locations.
- D. Starter for motors 30 horsepower and above shall be soft start type or variable frequency drives
- E. Coordinate with electrical and specify fault rating on all motor controllers.

2.2 MANUFACTURERS

- A. Electrical Service - Refer to Division 26 for required electrical characteristics.
- B. Motors: Design for continuous operation in 40 degrees C environment, and for temperature rise in accordance with ANSI/NEMA MG 1 limits for insulation class, Service Factor, and motor enclosure type.
- C. Visible Nameplate: Indicating motor information as required by NEC 430-7(a).
- D. Electrical Connection: Conduit connection boxes, threaded for conduit. For fractional horsepower motors where connection is made directly, provide screwed conduit connection in end frame.
- E. Starters: General electric, Cerus Industrial

2.3 SINGLE PHASE POWER - PERMANENT-SPLIT CAPACITOR MOTORS

- A. Starting Torque: Exceeding one fourth of full load torque.

- B. Starting Current: Up to six times full load current.
- C. Multiple Speed: Through tapped windings.
- D. Open Drip-proof or Enclosed Air Over Enclosure: Class A 65 degree C temperature rise insulation, Minimum 1.15 service factor, pre-lubricated sleeve or ball bearings, automatic reset overload protector.

2.4 SINGLE PHASE POWER - CAPACITOR START MOTORS

- A. Starting Torque: Three times full load torque.
- B. Starting Current: Less than five times full load current.
- C. Pull-up Torque: Up to 350 percent of full load torque.
- D. Breakdown Torque: Approximately 250 percent of full load torque.
- E. Motors: Capacitor in series with starting winding; capacitor-start/capacitor-run motors shall have two capacitors in parallel with run capacitor remaining in circuit at operating speeds.
- F. Drip-proof Enclosure: Class A 65 degree C temperature rise insulation, NEMA service factor, pre-lubricated sleeve ball bearings.
- G. Enclosed Motors: Class A 65 degree C temperature rise insulation, NEMA service factor, pre-lubricated sleeve ball bearings.

2.5 THREE PHASE POWER - SQUIRREL CAGE MOTORS

- A. Starting Torque: Between one and one-half times full load torque.
- B. Starting Current: Six times full load current.
- C. Power Output, Locked Rotor Torque, Breakdown or Pullout Torque: NEMA Design B characteristics.
- D. Design, Construction, Testing, and Performance: Conform to ANSI/NEMA MG for design B motors.
- E. Insulation System: NEMA Class B or better.
- F. Testing Procedure: In accordance with ANSI/IEEE 12, Test Method B. Load test motors to determine freedom from electrical or mechanical defects and compliance with performance data.
- G. Motor Frames: NEMA standard T-frames of steel, aluminum, or cast iron with end brackets of cast iron or aluminum with steel inserts.
- H. Thermister System (Motor Frame Sizes 254T and larger): Three PTC thermister imbedded in motor windings and epoxy encapsulated solid state control relay for wiring into motor starter.
- I. Bearings: Grease lubricated anti-friction ball bearings with housings equipped with plugged provision for re-lubrication, rated for minimum AFBMA 9, L-10 life of 20,000 hours. Calculate bearing load with NEMA minimum V-belt pulley with belt center line at end of NEMA standard shaft extension. Stamp bearing sizes on nameplate.
- J. Sound Power Levels: To ANSI/NEMA MG1.

- K. Nominal Efficiency: Meet or exceed values in schedules at full load and rated voltage when tested in accordance with ANSI/IEEE 112, and ASHRAE 90.1.
- L. Motors, Motor Starters and Electrical Work: Mechanical Contractor shall furnish all motors, motor starters, start-stop push buttons, pilot lights, firestats, interlocking diagrams, etc. for each piece of motor driven equipment under this Contract. Mechanical Contractor shall install all motors. All motor starters, start-stop push buttons, pilot lights, etc. shall be turned over to the Electrical Contractor for installation. Electrical contractor shall be responsible for power wiring. This contractor will be responsible for control wiring.
- M. Motor Starters and Push Buttons: All automatic starters shall be nominal 600 volt rating. All starters shall have two (2) auxiliary contacts.
 - 1. Starters for single speed motors, 3/4 through 25 HP inclusive, shall be magnetically operated, "Across-the-line" 3 phase, with three overload relays, "HAND-OFF-AUTO" selector switch and pilot in cover. Starters shall be combination type with fused or circuit breaker type disconnect mechanism.
 - 2. Starters for 30 HP and larger are to be reduced voltage, auto-transformer, combination type with fused or circuit breaker type disconnect mechanism. Starters shall be complete with three overload relays, "HAND-OFF-AUTO" selector switch and pilot lights.
 - 3. Enclosures for starters mounted indoors shall be NEMA 1. Enclosures for starters mounted outdoors or in wet areas shall be NEMA 3 R.
 - 4. Remote push button stations shall be as follows: Start-stop stations shall be recess mounted with neon pilot lamp of proper voltage.
 - 5. Push buttons for controls which are interlocked with automatic controls shall be maintained contact type. All others may be of momentary contact type.
 - 6. Control voltage for all motor starters shall 120 volts provided by integral control voltage transformers.
 - 7. If the Mechanical Contractor purchases equipment of larger horsepower than specified or shown on the plans, he shall pay all costs to increase the wiring and conduit.

PART 3 EXECUTION

3.1 APPLICATION

- A. Motors drawing less than 250 watts and intended for intermittent service may be germane to equipment manufacturer and need not conform to these specifications.
- B. Motors shall be open drip-proof type, except where specifically noted otherwise.
- C. Single phase motors for shaft mounted fans or blowers shall be permanent split capacitor type.

3.2 NEMA OPEN MOTOR SERVICE FACTORS

HORSEPOWER	3600 RPM	1800 RPM	1200 RPM	900 RPM
1/6-1/3	1.35	1.35	1.35	1.35
1/2	1.25	1.25	1.25	1.15
3/4	1.25	1.25	1.15	1.15
1	1.25	1.15	1.15	1.15

3.3 MOTOR EFFICIENCY

- A. Each motor furnished on the job must meet ASHRAE 90.1 and shall have a minimum guaranteed efficiency as listed in table below. Minimum guaranteed efficiencies for all motors shall be clearly stamped on motor nameplate. The lack of such stamp shall be cause for rejection of motor.

HORSEPOWER	EFFICIENCY
1, 1-1/2, 2	84.00
3	88.50
5, 7-1/2, 10	90.20
15, 20	91.70
25, 30, 40	93.00
50, 60, 75	94.10
100, 125, 150, 200	95.00

END OF SECTION

SECTION 23 05 29

SUPPORTS AND ANCHORS

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Pipe and equipment hangers, supports, and associated anchors.
- B. Equipment bases and supports.
- C. Sleeves and seals.
- D. Flashing and sealing equipment and pipe stacks.

1.2 RELATED WORK

- A. Section 230700 - Piping and Equipment Insulation.
- B. Section 232113 - Hydronic Piping.

1.3 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 013000 – Administrative Requirements.
- B. Indicate hanger and support framing and attachment methods.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURER'S

- A. Fee and Mason
- B. Grinnel

2.2 PIPE HANGERS AND SUPPORTS

- A. Hangers for pipe sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
- B. Hangers for pipe sizes 2 to 4 inches and cold pipe sizes 6 inches and over: Carbon steel, adjustable, clevis.
- C. Multiple or trapeze hangers: Steel channels with welded spacers and hanger rods; cast iron roll and stand for hot pipe sizes 6 inches and over.
- D. Vertical Support: Steel riser clamp.
- E. Floor support for pipe sizes 4 inches and over: Welded steel bracket and wrought steel clamp; adjustable steel yoke and cast iron roller for hot pipe 6 inches and over.
- F. Shields for insulated piping 2 inches and smaller: 18 gauge galvanized steel shield over insulation in 180 degree segments, minimum 12 inches long at pipe support.
- G. All hangers to be sized to include insulation.

2.3 HANGER RODS

- A. Steel Hanger Rods: Threaded both ends, threaded one end, or continuous threaded.

2.4 INSERTS

- A. Inserts: Malleable iron case or 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.

2.5 FLASHING

- A. Metal Flashing: 26 gauge galvanized steel.
- B. Lead Flashing: 5 lb./sq. ft. sheet lead for waterproofing.
- C. Caps: Steel, 22 gauge minimum, 16 gauge at fire resistant elements.

2.6 SLEEVES

- A. Sleeves for pipes through non-fire rated floors: Form with 18 gauge galvanized steel.
- B. Sleeves for pipes through non-fire rated beams, walls, footings, and potentially wet floors: Form with steel pipe or 18 gauge galvanized steel.

2.7 FABRICATION

- A. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- B. Design hangers without disengagement of supported pipe.

2.8 FINISH

- A. Prime coat exposed steel hangers and supports.
- B. Protect against galvanic action with dielectric unions for dissimilar metals.

PART 3 EXECUTION

3.1 INSERTS

- A. Provide inserts to General Contractor for placement in concrete formwork.
- B. Provide 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 over 4 inches.
- D. Where concrete slabs form finished ceiling, provide inserts to be flush with slab surface.
- E. Where inserts are omitted, drill through concrete slab from below and provide thru-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

3.2 PIPE HANGERS AND SUPPORTS

- A. Support horizontal piping as follows:

PIPE SIZE	MAX HANGER SPACING	MIN. HANGER
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DIAMETER		
1-1/2 TO 2 INCH	10' - 0"	3/8"
2-1/2 TO 3 INCH	10' - 0"	1/2"
4 to 6 inch	10' - 0"	5/8"
8 to 12 inch	10' - 0"	7/8"
14 to 20 inch	15' - 0"	1"

- B. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
- C. Place a hanger within 12 inches of each horizontal elbow.
- D. Use hangers with 1-1/2 inch minimum vertical adjustment.
- E. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
- F. Support riser piping independently of connected horizontal piping.

3.3 EQUIPMENT BASES AND SUPPORTS

- A. Provide equipment bases of reinforced concrete as detailed on plans.
- B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.
- C. Provide rigid anchors for pipes after vibration isolation components are installed.

3.4 FLASHING

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

END OF SECTION

SECTION 230553

MECHANICAL IDENTIFICATION

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Identification of all mechanical products installed under this Division.

1.2 RELATED WORK

- A. Section 099000 - Painting: Identification painting.

1.3 REFERENCES

- A. ANSI/ASME A13.1 - Scheme for the Identification of Piping Systems.

1.4 SUBMITTALS

- A. Submit product data under provisions of Section 013000 – Administrative Requirements.
- B. Mechanical and plumbing contractors shall coordinate color codes and marking procedures.

1.5 APPROVAL OF PRODUCT PRIOR TO BIDDING

- A. Refer to Instructions to Bidders, Page IB-3, Paragraph 4.3 Substitution.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Color: Unless specified otherwise, conform with ANSI/ASME A13.1.
- B. Plastic Nameplates: Laminated three-layer plastic with engraved black letters on light contrasting background color.
- C. Metal Tags: Brass with stamped letters, tag size minimum 1-1/2 inch (38 mm) diameter with smooth edges.
- D. Stencils: With clean cut symbols and letters of following size:

OUTSIDE DIAMETER OF INSULATION OF PIPE	LENGTH OF COLOR FIELD	SIZE OF LETTERS
3/4" - 1-1/4"	8"	1/2"
1-1/2" - 2"	8"	3/4"
2-1/2" - 6"	12"	1-1/4"
8" - 10"	24"	2 - 1/2"
Over 10"	32"	3 - 1/2"
Ductwork & Equipment	-----	2 - 1/2"

- E. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing printed markings.
- F. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape of not less than 6" wide by 4 mil thick manufactured for direct burial service.

PART 3 EXECUTION

3.1 PREPARATION AND INSTALLATION:

- A. Degrease and clean surfaces to receive adhesive for identification material.

3.2 INSTALLATION

- A. Plastic Nameplates: Install with corrosive-resistant mechanical fasteners, or adhesive.
- B. Plastic Pipe Markers: Install in accordance with manufacturer's instructions.
- C. Plastic type Pipe Markers: Install complete around pipe in accordance with manufacturer's instructions.
- D. Underground Plastic Pipe Markers: Install 6 to 8 inches (150 to 200 mm) below finished grade, directly above buried pipe.
- E. Equipment: Identify air handling units, pumps, heat transfer equipment, tanks and water treatment devices, and motor starters with plastic nameplates. Small devices, such as in-line pumps, may identified with plastic tags.
- F. Controls: Identify control panels and major control components outside panels with plastic nameplates.
- G. Valves: Identify valves in main and branch piping with tags.
- H. Piping: Identify piping, concealed or exposed, with plastic pipe markers. Tags may be used on small diameter piping. Identify service and flow direction. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and "T", at each side penetration of structure or enclosure, and at each obstruction.

3.3 PAINTING

- A. All surfaces requiring painting shall be left clean by the Mechanical Subcontractor. All painting shall be done by the General Contractor's painting Subcontractor. All exposed piping or insulation, convectors, grilles, or fans, in building or on roof will be painted. Paint pipe, equipment, hangers and accessories in Equipment Rooms including covering and foundations with two (2) coats of approved paint after thoroughly cleaning. Equipment having factory finish shall be touched up and given one (1) additional coat of machinery enamel color as selected. The above shall be done by the General Contractor. See Section 09 90 00.
- B. All piping in all equipment rooms shall be identified with pipe markers with directional arrows. The following color code shall be followed.

LEGEND	PIPING	DIRECTIONAL MARKER	BAND COLOR BACKGROUND
Domestic Water	Green	Green	White

NOTE: On any asphalt finished surfaces, prime with one (1) coat of aluminum paint before final color.

END OF SECTION

SECTION 230593

TESTING, ADJUSTING, AND BALANCING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. All division 23 specification sections, drawings, and general provisions of the contract apply to work of this section, as do other documents referred to in this section.

1.2 SCOPE OF WORK

- A. The Contractor shall obtain the services of an independent Test and Balance (TAB) Company which specializes in the testing and balancing of heating, ventilating and air conditioning (HVAC) systems to test, adjust and balance all HVAC systems in the building(s).
- B. The work included in this section consists of furnishing labor, instruments, and tools required in testing, adjusting and balancing the HVAC systems as described in these specifications or shown on accompanying drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. The testing, adjusting and balancing agency shall act as a reporting agency; that is, list and report each piece of equipment as to identification number, manufacturer, model number, serial number, proper location, specified performance, and report actual performance of all equipment as found during testing. The report is intended to be used during the life of the building as a ready reference indicating original conditions, equipment components, etc.
- C. Representatives of the Test and Balance Company shall visit the job site during installation of the HVAC equipment, piping and ductwork as required.
- D. Upon completion of the HVAC system installation, the Test and Balance Company shall perform all required testing and balancing with the full cooperation of the Contractor and his Sub-contractors. The Contractor shall make changes and/or adjustments to the HVAC system components that are required by the Test and Balance Company to accomplish proper balancing. The TAB agency shall not supply or install any materials or balancing devices such as pulleys, drives, belts, etc. All of this work is by the Contractor and shall be performed at no additional cost to the Owner.
- E. The test and balance report complete with a summary page listing all deficiencies shall be submitted to the Architect for review by his Mechanical Engineer. If the Mechanical Engineer agrees with the report, he shall sign it and return it to the Architect. The test and balance report must be complete and must be accepted by the Mechanical Engineer prior to acceptance of the project. Any outstanding test and balance items shall be placed on the punch list and a monetary value shall be assigned to them.
- F. After all deficiencies have been corrected the Mechanical Engineer shall sign the testing and balancing report, and the Test and Balance Company shall supply four (4) copies of the final and complete report to the Architect for inclusion in the Operation and Maintenance Manuals.
- G. The items requiring testing, adjusting, and balancing include (but are not restricted to) the following:

AIR SYSTEMS

Supply Fans
Zone, Branch, & Main Ducts
Diffusers, registers, & grilles
Coils

1.3 DEFINITIONS, REFERENCES, STANDARDS

- A. All work shall be in accordance with the latest edition of the Associated Air Balance Council (AABC) National Standards or the latest standards of the National Environmental Balancing Bureau (NEBB). If these contract documents set forth more stringent requirements than the AABC National Standards or the NEBB Standards, these contract documents shall prevail.

1.4 QUALIFICATIONS

- A. Agency Qualifications: The TAB Agency shall be a current member of the AABC or the NEBB and must be in good standing with FP&C. A list of these firms shall be obtained from FP&C. Falsification of a TAB report shall be grounds for removal from the FP&C list and the firm's actions shall be reported to the appropriate certification agency. The contractor may use any FP&C approved TAB firm on a state project.

1.5 SUBMITTALS

- A. Procedures and Agenda: The TAB agency shall submit the TAB procedures and agenda proposed to be used.
- B. Sample Forms: The TAB agency shall submit sample forms, which shall include the minimum data required by the AABC National Standards or the NEBB Standards.

1.6 TAB PREPARATION AND COORDINATION

- A. Shop drawings, submittal data, up-to-date revisions, change orders, fan curves, pump curves and other data required for planning, preparation, and execution of the TAB work shall be provided when available and no later than 30 days after the Designer has returned the final approved submittal data to the Contractor.
- B. System installation and equipment startup shall be complete prior to the TAB agency's being notified to begin.
- C. The building control system (BCS) contractor shall provide and install the control system, including all temperature, pressure and humidity sensors. These shall be calibrated for accurate control. If applicable, the BCS contractor shall install all necessary computers and computer programs, and make these operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution.
- D. All test points, balancing devices, identification tags, etc., shall be accessible and clear of insulation and other obstructions that would impede TAB procedures.
- E. Qualified installation or startup personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.

1.7 REPORTS

- A. Final TAB Report - The TAB agency shall submit the final TAB report for review by the Architect. On plans provided, all outlets, devices, HVAC equipment, etc., shall be identified (including manufacturer, model number, serial number, motor manufacturer, HP, drive type, fan and motor sheaves and belt number), along with a numbering system corresponding to report unit identification. The TAB agency shall submit an AABC "National Project Performance Guaranty" (or similar NEBB Guaranty) assuring that the project systems were tested, adjusted and balanced in accordance with the project specifications and AABC National Standards (or similar NEBB Standards). The Designer shall certify his approval on the Performance Guaranty.

- B. Submit 4 copies of the Final TAB Report to the Architect for inclusion in the Operation and Maintenance Manuals.

PART 2 INSTRUMENTATION

- A. All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments shall be in accordance with the requirements of AABC National Standards (or similar NEBB Standards).

PART 3 EXECUTION

3.1 GENERAL

- A. The specified systems shall be reviewed and inspected for conformance to design documents. Testing, adjusting and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with AABC National Standards (or similar NEBB Standards). Adjustment tolerances shall be + or - 10% unless otherwise stated.
- B. Equipment settings, including manual damper quadrant positions, valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.
- C. All information necessary to complete a proper TAB project and report shall be per AABC or NEBB standards unless otherwise noted. The descriptions of work required, as listed in this section, are a guide to the minimum information needed.
- D. TAB contractor shall cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. Upon completion, patch insulation, ductwork and housings using materials identical to those removed. Seal insulation to reestablish integrity of the vapor barrier.
- E. TAB work shall include additional inspection and adjustment of components during the season following the initial balance to include re-balance of any items influenced by seasonal changes or as directed by the Owner.

3.2 AIR SYSTEMS

- A. The TAB agency shall verify that all ductwork, splitters, extractors, dampers, grilles, registers, and diffusers have been installed per design, are functional and set full open. Any leakage in the ductwork shall be repaired prior to the test. The TAB agency shall perform the following TAB procedures in accordance with the AABC National Standards or NEBB Standards:
For supply fans:
 1. Fan speeds - Test and adjust fan RPM to achieve design CFM requirements.
 2. Current and Voltage - Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure fan motor is not in or above the service factor.
 3. Pitot-Tube Traverse - Perform a Pitot-tube traverse of main supply and return ducts, as applicable to obtain total CFM. If a Pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
 4. Outside Air - Test and adjust the outside air on applicable equipment using a Pitot-tube traverse. If a traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet. If a traverse is not practical use the mixed-air temperature method if the inside and outside temperature difference is at least 20 degrees Fahrenheit or use the difference between Pitot-tube traverses of the supply and return air ducts.
 5. Static Pressure - Test and record system static pressure, including the static

pressure profile of each supply fan.

For exhaust fans:

1. Fan speeds - test and adjust fan RPM to achieve design CFM requirements.
2. Current and Voltage - Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure motor is not in or above the service factor.
3. Pitot-Tube Traverse - Perform a Pitot-tube traverse of main exhaust ducts to obtain total CFM. If a Pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
4. Static Pressure - Test and record system static pressure, including the static pressure profile of each exhaust fan.

For zone, branch and main ducts:

1. Adjust ducts to within design CFM requirements. As applicable, at least one zone balancing damper shall be completely open. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.

For diffusers, registers and grilles:

1. Tolerances - Test, adjust, and balance each diffuser, grille, and register to within 10% of design requirements. Minimize drafts. Include required CFM, initial test CFM and final CFM.
2. Identification - Identify the type, location, and size of each grille, diffuser, and register. This information shall be recorded on air outlet data sheets.

For coils:

1. Air Temperature - Once air flows are set to acceptable limits, take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coil. Dry-bulb temperature shall be taken on the entering and leaving side of each heating coil.

3.6 ADDITIONAL TAB SERVICES

- A. Job Site Inspections: During construction, the TAB agency shall inspect the installation of pipe systems, sheet metal work, temperature controls, and other component parts of the HVAC systems as required.
- B. Verification of HVAC Controls: The TAB agency shall be assisted by the building control systems Contractor in verifying the operation and calibration of all HVAC and temperature control systems. The following tests shall be conducted:
 1. Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets, fire and freeze stats, and other safety devices.
 2. Verify that all controlling instruments are calibrated and set for design operating conditions.
- C. Temperature Testing: To verify system control and operation, a series of three temperature tests shall be taken at approximately two hour intervals in each separately controlled zone. The resulting temperatures shall not vary more than two degrees Fahrenheit from the thermostat or control set point during the tests. Outside temperature and humidity shall also be recorded during the testing periods.
- D. TAB Report Verification: At the time of final inspection, the TAB agency may be required to recheck, in the presence of the owner's representative, specific and random selections of data, air quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the owner's representative. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, will not exceed 10% of the total number tabulated in the report.

END OF SECTION

SECTION 230700

PIPING AND EQUIPMENT INSULATION

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Piping Insulation
- B. Jackets and Accessories
- C. Equipment Insulation
- D. Duct Insulation

1.2 RELATED WORK

- A. Section 233100 - Ductwork

1.3 REFERENCES

- A. ANSI/ASTM C547 - Mineral Fiber Preformed Pipe Insulation
- B. ANSI/ASTM C552 - Cellular Glass Block and Pipe Thermal Insulation.
- C. ASTM B209 - Aluminum and Aluminum Alloy Sheet and Plate
- D. ASTM E845 - Surface Burning Characteristics of Building Materials.
- E. NFPA 255 - Surface Burning Characteristics of Building Materials.
- F. UL 723 - Surface Burning Characteristics of Building Materials.

1.4 QUALITY ASSURANCE

- A. Applicator: Company specializing in application of piping insulation.
- B. Materials: Flame spread/fuel contributed/smoke developed rating of 25/50/50 in accordance with ASTM E84, NFPA 255.0, UL 723.

1.5 SUBMITTALS

- A. Submit product data for each application as per Section 013000 – Administrative Requirements.
- B. Submit manufacturer's installation instructions.

PART 2 PRODUCTS

2.1 INSULATION

- A. After all work has been tested and found to be leak free and tight, and accepted by the Architect, insulate as follows:
 - 1. All domestic hot and cold piping above ground shall be covered with 1" thick fiberglass, molded type sectional pipe covering complete with FRJ jacket. Sections of pipe covering shall be joined together, the mastic to be buttered on only one of the two adjoining surfaces at both the Longitudinal and circumferential joints so that

a complete seal at the joints is obtained. The piping insulation will be secured in place with copper wire spaced not more than 12 on center. All domestic water piping insulation shall be continuous. Contractor shall not cut insulation to fit around structural items. No exceptions.

2. Insulate the square to round connections on each air handling unit with 3" thick 3/4 lb. density insulation board using stick pins randomly spaced 18" apart. Insulation board shall have aluminum vapor barrier.
3. Fittings, flanges, valves, etc., shall be covered with molded or fabricate covers of same material as pipe covering and shall be finished with two (2) coats of white vapor barrier mastic reinforced with 20-20 mesh glass fabric.
4. Insulate all rectangular supply, return, exhaust, and fresh air ducts with 3" thick 3/4 lb. density fiberglass insulation with reinforced aluminum vapor barrier. Seal all joints with duct tape.
5. All round and flat oval supply air ducts shall be wrapped with 3" thick, 3/4 lb. density fiberglass insulation with reinforced aluminum vapor barrier. Seal all joints with 2" duct tape.
6. Insulate cooling coil condensate drain lines from air handling units with 1/2" thick aerotube type insulation tied on and sealed over with tape.
7. Insulate back of all ceiling diffusers with 3" thick fiberglass with reinforced aluminum vapor barrier.
8. Insulate all horizontal roof drains with 2" thick 3/4 lb. density fiberglass insulation with reinforced aluminum vapor barrier. Seal all joints with duct tape.
9. All exterior ductwork and ductwork run in attic spaces shall be wrapped with 3" thick, 3/4 lb. density fiberglass insulation with reinforced aluminum vapor barrier.
10. Insulate all PVC piping located in a return air plenum with 2" thick 3/4 lb. density fiberglass insulation with reinforced aluminum vapor barrier. Seal all joints with duct tape.

PART 3 EXECUTION

3.1 PREPARATION

- A. Install materials in accordance with manufacturer's instructions.

3.2 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Continue insulation with vapor barrier through penetrations.
- C. On insulated piping with vapor barrier, insulate fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.
- D. Neatly finish insulation at supports, protrusions, and interruptions.

END OF SECTION

SECTION 233100

DUCTWORK

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Low pressure duct.
- B. Medium and high pressure duct.
- C. Fire and Smoke Dampers

1.2 RELATED WORK

- A. Section 230523 - Supports and Anchors
- B. Section 230700 - Piping and Equipment Insulation
- C. Section 233600 - Air Terminal Units
- D. Section 233700 - Air Inlets and Outlets
- E. Section 230593 - Testing and Balance

1.3 REFERENCES

- A. ASHRAE, 2009 Fundamentals, Chapter 21.
- B. ASHRAE, 2008 Equipment, Chapter 18.
- C. NFPA 90A, 90B.
- D. H.V.A.C. Duct Construction Standards - SMACNA 1995.

1.4 DEFINITIONS

- A. Duct sizes: Inside clear dimensions for wrapped ducts, maintain sizes inside lining. Metal to metal sizes for internally lined ductwork.
- B. Low Pressure: Three pressure classifications: 1/2" WG positive or negative static pressure and velocities less than 2,000 fpm, 1" WG positive or negative static pressure and velocities less than 2,500 fpm and 2" WG positive or
- C. Medium Pressure: Three pressure classifications: 3 inch WG positive or negative static pressure and velocities less than 4,000 fpm, 4" WG positive static pressure and velocities greater than 2,000 fpm. 6" WG positive static pressure and velocities greater than 2,000 fpm.

1.5 REGULATORY REQUIREMENTS

- A. Construct ductwork to NFPA 90A and NFPA 90B Standards.
- B. Store and protect products under provisions of Section 016000.
- C. Construct ductwork to International Mechanical Code Standards

PART 2 PRODUCTS

2.1 LOW PRESSURE DUCTWORK

- A. Furnish and install all ducts for the air conditioning, heating and ventilating systems. Ductwork shall be complete with grilles, vanes splitters, flashings, hangers, flexible connections, manual dampers, fresh air inlet louvers, reinforcing angles, transitions to equipment, etc.
- B. All low pressure ductwork (mean velocity less than 2,000 FPM and static pressure in duct 2" of water or less) shall be constructed as per SMACNA Standards, 1995 Edition, Chapter 1, and shall be of the gauge metal and reinforced as per SMACNA Standards, 1995 Edition.
- C. Flashing shall be of the same material as specified under the roofing and flashing section of these specifications, or of 16-ounce sheet copper and shall be furnished and installed around all outside openings used for ducts or fans where required. Roof flashing shall extend at least 8" above roof. Cooperate with roofing contractor when installing flashing.
- D. All duct connections to equipment shall be made with fire and mildew resistant flexible connections of canvas or other acceptable materials. Connections shall have suitable metal collar frames at each end and shall not be less than 4" long with at least 1" of slack in the connection. Flexible connections shall be heat resistant to 500 degrees F continuously.
- E. Duct dimensions shown are metal sizes. All edges shall be straight and true.
- F. All flexible connections, duct liner and adhesives shall be U.L. listed as having a maximum flame spread of 50, fuel contribution of 25 and smoke contribution of 25.
- G. This Contractor shall furnish and install in ductwork all dampers, vanes splitters, etc. as shown on the drawings or necessary to make the system complete. Where dampers or splitters can not be accessed through lay in ceiling, Contractor shall provide lockable 24" x 24" access door. Contractor shall coordinate location with Architect.
- H. Shafts shall be marked to show position of dampers, vanes, splitters, etc.
- I. Ductwork shall be supported in accordance with SMACNA Plate No. 17 and No. 18, up to and including band iron hangers attached to duct by means of screws or rivets per hanger
- J. Access doors shall be provided in ductwork for all automatic dampers and each manual damper 3 square feet in area or larger, and shall be so located that damper can be completely serviced through the access door. Access door shall be provided with felt gaskets and suitable hinges and locks. Where access doors occur in insulated duct, double skin insulated doors shall be used.
- K. Where square ducts are shown, provide single vane elbows as per Plate 22, Figure A, SMACNA Standards, 1995 Edition. For all ductwork over 18" provide double vane square elbow as shown in Figure C of the Plate.
- L. All low pressure ductwork joints shall be sealed with hard cast "iron grip".
- M. Flexible air duct for connections between low pressure rectangular duct and ceiling diffusers shall be pre- insulated and listed by Underwriters Laboratories under U.L Standard 181 as a Class 1 flexible air duct and complying with NFPA Standards 90A and 90B.
- N. All flex duct 45 degree and 90 degree turns shall be metal hard duct.

2.2 INSULATED ACOUSTICAL LOW PRESSURE FLEXIBLE DUCT

- A. The duct shall be constructed of a CPE fabric supported by helical wound galvanized steel.

- B. Provide where indicated on drawings Flexmaster Type 8M UL181 Class I Air Duct.
- C. Fabric shall be mechanically locked to the steel helix without the use of adhesives or chemicals.
- D. The internal working pressure rating shall be at least 6" w.g. positive and 4" w.g. negative with a bursting pressure of at least 2½ time the working pressure.
- E. The duct shall be rated for a velocity of at least 4000 feet per minute.
- F. The duct must be suitable for continuous operation at a temperature range of -20° F to +250°
- G. Acoustical performance, when tested by an independent laboratory in accordance with the Air Diffusion Council's Flexible Air Duct Test Code FD 72-R1, Section 3.0, Sound Properties, shall be as follows:

The insertion loss (dB) of a 10 foot length of straight duct when tested in accordance with ASTM 477, at a velocity of 2500 feet per minute, shall be at least:

Octave Band	2	3	4	5	6	7
Hz.	125	250	500	1000	2000	4000
6" diameter	7	31	40	38	40	27
8" diameter	13	29	36	35	38	22
12" diameter	21	28	29	33	26	12

The radiated noise reduction (dB) of a 10 foot length of straight duct when tested in accordance with ASTM E477, at a velocity of 2500 feet per minute, shall be at least:

Octave Band	2	3	4	5	6	7
Hz.	125	250	500	1000	2000	4000
6" diameter	5	8	7	8	11	15
8" diameter	10	7	7	8	10	13
12" diameter	9	6	6	5	9	13

The self generated sound power levels (LW) dB re 10⁻¹² Watt of a 10 foot length of straight duct for an empty sheet metal duct when tested in accordance with ASTM E477, at a velocity of 1000 feet per minute, shall not exceed:

Octave Band	2	3	4	5	6	7
Hz.	125	250	500	1000	2000	4000
6" diameter	42	31	23	18	17	21
8" diameter	41	34	27	19	18	21
12" diameter	54	45	38	31	27	23

Factory insulate the flexible duct with fiberglass insulation. The R value shall be at least 5.0 at a mean temperature of 75° F. (R-4.2 is not acceptable)

- H. Cover the insulation with a fire retardant metalized vapor barrier jacket reinforced with crosshatched scrim having a permeance of not greater than 0.05 perms when tested in accordance with ASTM E96, Procedure A.
- I. Maximum length to be 3'-0
ALL FLEX CONNECTIONS TO CEILING DIFFUSERS MUST BE FACTORY DESIGNED TO HAVE NO DIMENSIONAL CONTORTION WHEN CONNECTED TO THE DIFFUSER.

2.3 FIRE AND SMOKE DAMPERS

- A. Round and oval fire dampers shall be designed for high pressure duct systems.
- B. Rectangular fire dampers shall be designed for low pressure duct systems.
- C. All fire dampers must be NFPA 90A and UL approved.
- D. Furnish and install access doors in ductwork, walls, and ceilings where required to service all fire dampers, smoke dampers and detectors. All fire and smoke dampers shall be installed by the sheet metal contractor. All smoke detectors shall be furnished by the electrical Sub-contractor. Control of smoke dampers shall be coordinated with fire alarm system and building automation system.
- E. Rectangular Smoke Dampers - Louvers Dampers Inc. Model SD-400-UD or Ruskin FSD-35 tight seal parallel blade smoke dampers with low leakage and felted blades.
- F. Round and Oval Smoke Dampers - Shall be same as above but complete with welded round or oval collars. Units shall be capable of handling pressures up to 6" W.G.
- G. Smoke dampers shall be Class I rated as per UL 555.
- H. Sheet metal contractor shall provide and install all smoke dampers and actuators. Dampers shall be provided with end switches
- I. Approved Manufacturers: Pottorff, Ruskin, Price, Nailor Industries, Greenheck, or prior approved equal.

2.4 LOW LOSS TAP

- A. All round low pressure connections to rectangular ducts shall be made with a factory fabricated 45 degree low loss entry "shoe" tap with damper constructed of minimum 26 gage galvanized steel. The damper shall have a 2" raised handle with a high quality locking quadrant. A 3/8" continuous rod with "U" bolts connects the damper to the rod. Nylon end bearings are required where the rod penetrates the spin collar barrel.
- B. Provide Flexmaster #STOD-BO3, Dace # 26 ga STOD-C03, or prior approved equal.
- C. For medium pressure systems where used upstream of VAV terminals, the damper can be eliminated (use Flexmaster #STO or Dace 24 ga STO). Gauge shall be 24 gauge on medium pressure systems.

PART 3 EXECUTION

3.1 INSTALLATION

- A. See details of ductwork symbols and connections on drawing.

END OF SECTION

SECTION 233700

AIR OUTLETS AND INLETS

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Diffuser boots.
- B. Registers/grilles.
- C. Louvers.

1.2 RELATED WORK

- A. See Mechanical Plans for wall louvers.

1.3 REFERENCES

- A. ADC 1062 - Certification, Rating and Test Manual.
- B. AMCA 500 - Test Method for Louvers, Dampers, and Shutters.
- C. ANSI/NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- D. ARI 650 - Air Outlets and Inlets.
- E. ASHRAE 70 - Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.
- F. SMACNA - Low Pressure Duct Construction Standard.

1.4 QUALITY ASSURANCE

- A. Test and rate performance of air outlets and inlets in accordance with ADC Equipment Test Code 1062 and ASHRAE 70.
- B. Test and rate performance of louvers in accordance with AMCA 500.

1.5 REGULATORY REQUIREMENTS

- A. Conform to ANSI/NFPA 90A.

1.6 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 013000 – Administrative Requirements.
- B. Provide product data for items required for this project.
- C. Submit schedule of outlets and inlets indicating type, size, application, and noise level.
- D. Review requirements of outlets and inlets as to size, finish, and type of mounting prior to submitting product data and schedules of outlets and inlets.
- E. Submit diffuser, grille and register color data to Architect for approval.

PART 2 PRODUCTS

2.1 GENERAL

- A. See mechanical schedules and drawings for diffuser types, sizes and configuration. See architectural plans - room finish schedules for type of ceiling and wall construction.
- B. Substitutions: Under provisions of Instructions To Bidders, Page IB-3, Paragraph 4.3.

2.2 ACCEPTABLE MANUFACTURERS - Ceiling Diffusers

- A. Titus TMSA Series, Krueger Series 1400 Adjustable
- B. All diffusers shall have opposed blade volume dampers and adjustable horizontal to vertical four way throw operable from face of grille. All diffusers must be aluminum.

2.3 ACCEPTABLE MANUFACTURERS - Ceiling Exhaust Grilles

- A. Titus - Model 50F Code C 1/2" x 1/2" x 1" Cube Core, Krueger EGC-10, Nailor Industries Model 51EC
- B. All exhaust registers shall have opposed blade dampers.
- C. Grilles shall have baked enamel white finish.
- D. All dampers shall be operable from grille face.

2.4 ACCEPTABLE MANUFACTURERS - Ceiling Return Air Grilles

- A. Titus - 50F Code C, Krueger EGC-10, Nailor Industries
- B. All return air shall have opposed blade dampers. See plans for filter backed grille requirements.

2.5 ACCEPTABLE MANUFACTURERS - Wall Supply Registers.

- A. Titus 1700 Series, Krueger ULTRA-FLO
- B. All registers shall have adjustable blade dampers on all registers.
- C. Furnish and install opposed blade damper on all registers.
- D. Finish to be approved by Architect.

2.6 ACCEPTABLE MANUFACTURERS - DOOR RETURN GRILLES

- A. Titus Model CT-700, Krueger Series 5600, Nailor Industries
- B. Substitutions: Under provisions of Instructions To Bidders, Page IB-3, Paragraph 4.3.
- C. All aluminum construction & design.
- D. Finish to be approved by Architect.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install items in accordance with manufacturer's instructions.
- B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement. Refer to Section 099000.
- C. Install diffusers to ductwork with air tight connection.
- D. Provide balancing dampers on duct take-off to diffusers, and grilles and register, regardless of whether dampers are specified as part of the diffuser, or grille and register assembly.
- E. Furnish and install necessary frames, bucks, sponge rubber gasketed, etc. to make a neat setting job.
- F. Diffusers shall be placed to insure that air does not blast against columns and lights.
- G. All diffusers, registers, etc. shall have external volume controls and deflecting grids.
- H. Ceilings in areas where plaster or gypsum board ceiling are used, shall be surface mounted.

END OF SECTION

SECTION 237413

PACKAGE ROOFTOP AIR CONDITIONING UNIT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Package roof top unit.
- B. Refrigeration components.
- C. Unit operating controls.
- D. Roof curb.
- E. Electrical power connections.
- F. Operation and maintenance service.

1.2 RELATED SECTIONS

- A. Section 23 05 13 – Motors
- B. Section 23 07 00 – Piping and Equipment Insulation
- C. Section 26 27 26 – Equipment Wiring Systems

1.3 REFERENCES

- A. NFPA 90 A & B - Installation of Air Conditioning and Ventilation Systems and Installation of Warm Air Heating and Air Conditioning Systems.
- B. ANSI/ASHRAE 15 - Safety Code for Mechanical Refrigeration.
- C. ARI 360 - Commercial and Industrial Unitary Air Conditioning Equipment testing and rating standard.
- D. ANSI/ASHRAE 37 - Testing Unitary Air Conditioning and Heat Pump Equipment.
- E. ANSI/ASHRAE/IESNA 90.1-1999 - Energy Standard for New Buildings Except Low-Rise Residential Buildings.
- F. ANSI Z21.47/UL1995 - Unitary Air Conditioning Standard for safety requirements.
- G. ARI 210/240 - Unitary Air-Conditioning Equipment and Air- Source Heat Pump Equipment.
- H. ARI 270 - Sound Rating of Outdoor Unitary Equipment.
- I. ARI 370 - Sound Rating of Large Outdoor Refrigerating and Air Conditioning Equipment
- J. ANSI/NFPA 70-1995 - National Electric Code.

1.4 SUBMITTALS

- A. Submit unit performance data including: capacity, nominal and operating performance.

- B. Submit Mechanical Specifications for unit and accessories describing construction, components and options.
- C. Submit shop drawings indicating overall dimensions as well as installation, operation and services clearances. Indicate lift points and recommendations and center of gravity. Indicate unit shipping, installation and operating weights including dimensions.
- D. Submit data on electrical requirements and connection points. Include recommended wire and fuse sizes or MCA, sequence of operation, safety and start-up instructions.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's installation instructions for rigging, unloading, and transporting units.
- B. Protect units from physical damage. Leave factory-shipping covers in place until installation.

1.6 WARRANTY

- A. Provide parts warranty (excluding refrigerant) for one year from start-up or 18 months from shipment, whichever occurs first.
- B. Provide five-year extended warranty for compressors.
- C. Provide ten-year heat exchanger limited warranty.

1.7 REGULATORY REQUIREMENTS

- A. Unit shall conform to ANSI Z21.47/UL1995 for construction of packaged air conditioner.
 - 1. In the event the unit is not UL approved, the manufacturer must, at his expense, provide for a field inspection by a UL representative to verify conformance to UL standards. If necessary, contractor shall perform modifications to the unit to comply with UL, as directed by the UL representative, at no additional expense to the Owner.

1.8 EXTRA MATERIALS

- A. Provide one set of filters.

PART 2 PRODUCTS

2.1 SUMMARY

- A. The contractor shall furnish and install package rooftop unit(s) as shown and scheduled on the contract documents. The unit(s) shall be installed in accordance with this specification and perform at the specified conditions as scheduled.
- B. APPROVED MANUFACTURERS
 - 1. Trane:
 - 2. Lennox
 - 3. Substitutions: 7 working days prior approval required as indicated under the general and/or supplemental conditions of these specifications. Mechanical contractor shall be responsible for electrical and mechanical changes to the structure when using a product other than the specified product. As built drawing changes are the responsibility of the mechanical contractor.

2.2 GENERAL UNIT DESCRIPTION

- A. Unit(s) furnished and installed shall be electric heating/electric cooling packaged rooftop (s) as scheduled on contract documents and these specifications. Cooling capacity ratings shall be based on ARI Standard 210. Unit(s) shall consist of insulated weather-tight casing with compressor(s), air-cooled condenser coil, condenser fans, evaporator coil, return-air filters, supply motors and unit controls, and electric heating section.
- B. Unit(s) shall be 100% factory run tested and fully charged with R-410A.
- C. Unit(s) shall have labels, decals, and/or tags to aid in the service of the unit and indicate caution areas.
- D. Units shall be convertible airflow design as manufactured.
- E. Wiring internal to the unit shall be colored and numbered for identification.

2.3 UNIT CASING

- A. Cabinet: Galvanized steel, phosphatized, and finished with an air-dry paint coating with removable access panels. Structural members shall be 18 gauge with access doors and removable panels of minimum 20 gauge.
- B. Units cabinet surface shall be tested 1000 hours in salt spray test in compliance with ASTM B117.
- C. Cabinet construction shall allow for all service/ maintenance from one side of the unit.
- D. Cabinet top cover shall be one piece construction or where seams exists, it shall be double-hemmed and gasket-sealed.
- E. Access Panels: Water- and air-tight panels with handles shall provide access to filters, heating section, return air fan section, supply air fan section, evaporator coil section, and unit control section.
- F. Units base pan shall have a raised 1 1/8 inch high lip around the supply and return openings for water integrity.
- G. Insulation: Provide 1/2 inch thick fiberglass insulation with foil face on all exterior panels in contact with the return and conditioned air stream. All edges must be captured so that there is no insulation exposed in the air stream.
- H. Provide openings either on side of unit or through the base for power, control, condensate, and gas connections.
- I. The base of the unit shall have 3 sides for forklift provisions. The base of the units shall have rigging/lifting holes for crane maneuvering.

2.4 AIR FILTERS

- A. Air Filters: Factory installed filters shall mount integral within the unit and shall be accessible through access panels. One-inch thick glass fiber disposable media filters shall be provided with the provisions within the unit for 2 inch thick filters to be field-provided and installed.

2.5 FANS AND MOTORS

- A. Provide evaporator fan section with forward curved, double width, double inlet, centrifugal type fan.

- B. Provide self-aligning, grease lubricated, ball or sleeve bearings with permanent lubrication fittings.
- D. Provide all units with belt driven, supply fans with adjustable motor sheaves.
- E. Outdoor and Indoor Fan motors shall be permanently lubricated and have internal thermal overload protection.
- F. Outdoor fans shall be direct drive, statically and dynamically balanced, draw through in the vertical discharge position.
- G. Provide shafts constructed of solid hot rolled steel, ground and polished, with key-way, and protectively coated with lubricating oil.

2.6 ELECTRIC HEATING SECTION

- A. Completely assembled and factory installed heating system shall be integral to unit, UL or CSA approved specifically for outdoor applications for use downstream from refrigerant cooling coils. Provide capability for electric through the side of the unit.
- B. Heating section shall be factory run tested prior to shipment.
- C. 2-staged heat minimum.
- D. Limit controls: High temperature limit controls will shut off power in the event of excessive temperatures resulting from restricted indoor airflow or loss of indoor airflow.

2.7 EVAPORATOR COIL

- A. Provide configured aluminum fin surface mechanically bonded to copper tubing coil.
- B. Provide an independent expansion device for each refrigeration circuit. Factory pressure tested at 450 psig and leak tested at 200 psig.
- C. Provide factory installed thermal expansion valve (TXV) for each refrigerant circuit. Factory pressure tested at 450 psig and leak tested at 200 psig.
- D. Provide a removable, reversible, cleanable double sloped drain pan for base of evaporator coil constructed of PVC.

2.8 CONDENSER SECTION

- A. Provide internally finned seamless copper tube mechanically bonded to configured aluminum fins. Factory pressure test to 450 psig.
- B. Provide vertical discharge, direct drive fans with aluminum blades. Fans shall be statically balanced. Motors shall be permanently lubricated, with integral thermal overload protection in a weather tight casing.

2.9 REFRIGERATION SYSTEM

- A. Compressor(s): Provide scroll compressor with direct drive operating at 3600 rpm. Integral centrifugal oil pump. Provide suction gas cooled motor with winding temperature limits and compressor overloads.
- B. Units shall have cooling capabilities down to 0 degree F as standard.
- C. Provide all unit's 7.5 tons or greater with two refrigerant circuit(s) factory-supplied

completely piped with liquid line filter-drier, suction and liquid line pressure ports. 6 tons or below provide one refrigerant circuit.

2.10 OUTDOOR AIR SECTION

- A. Provide manual outside air damper with 0-50% operating range.

2.11 OPERATING CONTROLS

- A. Provide microprocessor unit-mounted DDC control which when used with an electronic zone sensor provides proportional integral room control. This UCM shall perform all unit functions by making all heating, cooling, and ventilating decisions through resident software logic.
- B. Provide factory-installed indoor evaporator defrost control to prevent compressor slugging by interrupting compressor operation.
- C. Provide an anti-cycle timing and minimum on/off between stages timing in the microprocessor.

2.12 STAGING CONTROLS

- A. Provide NEC Class II, electronic, adjustable zone control to maintain zone temperature setting.
- B. Provide manual/automatic changeover control with (off-heat-auto-cool), and fan control switch (auto-on).

2.13 UNIT PERFORMANCE REQUIREMENTS

- A. Supply air fan performance data as submitted shall include the effect of a wet coil, down flow or horizontal configuration and the return air filter static loss.
- B. Scheduled performance shall be based on ARI 210/240/340/360 and ANSI Z21.47 test conditions.

2.14 ROOF CURB

- A. Contractor shall provide factory supplied roof curb, 16 gauge perimeter made of zinc coated steel with supply and return air gasketing and wood nailer strips. Ship knocked down and provided with instructions for easy assembly.
- B. Curb shall be manufactured in accordance with the National Roofing Contractors Association guidelines.
- C. Curbs shall be by LM Curbs.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Contractor shall verify that roof is ready to receive work and opening dimensions are as indicated on shop drawings.
- B. Contractor shall verify that proper power supply is available.

3.2 INSTALLATION

- A. Contractor shall install in accordance with manufacturer's instructions.
- B. Mount units on factory built roof mounting frame providing watertight enclosure to protect ductwork and utility services. Install roof mounting curb level.

3.3 SCHEDULE Refer to Mechanical Plans

END OF SECTION

SECTION 260100

BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.1 SCOPE

- A. The scope of work is as indicated on electrical drawings and includes but is not limited to the following:
- B. Demolition:
1. Disconnect and remove all interior lighting fixtures and associated controls.
 2. Disconnect and remove existing fire alarm system and peripheral devices.
 3. Disconnect and remove all telecommunication equipment.
 4. Disconnect existing mechanical and plumbing equipment for removal by others.
 5. Disconnect and remove all existing interior electrical devices including but not limited to receptacles and junction boxes
 6. Disconnect and remove all interior/exterior electrical equipment
 7. Coordinate service shutdown with local utility company. Coordinate outage with owner a minimum of 2-weeks in advance of outage.
- C. Site:
1. Coordination with the local utility company and provide. Provide secondary conduit, metering equipment, service termination, and junction box with splicing hardware. Include all Utility Company fees for service connection in bid.
 2. Coordinate communication services with the local telecommunication company and provide service conduit with pull rope to locations stipulated by Utility Company.
 3. Provide temporary construction power; coordinate with the local Utility Company.
 4. Provide in-ground pull boxes and conduit as requires to serve any/all electrical equipment located throughout the site.
- Alternate #3: Roll-up Emergency Generator
1. Provide two manual transfer switches
 2. Provide generator docking station
 3. Provide emergency distribution panel served from the generator docking station to provide power to the manual transfer switches.
- D. Power:
1. Provide panel, safety disconnect switches and associated feeder(s).
 2. Provide receptacles, special outlets, junction boxes, and their associated branch circuits.
 3. Provide branch circuits associated with all mechanical and plumbing system equipment, including all accessories such as motorized dampers, valves, fan interlocks, ionization, etc.
 4. Provide tamper resistant receptacles in lobbies and areas accessible to the public.
 5. Provide hospital grade receptacles in patient care areas.
 6. Provide hospital grade wiring in patient care areas in accordance with NEC 517.
 7. Sawcut and patch as required for new floor boxes.
- E. Lighting:
1. Provide interior light fixtures, wall switches, wall dimmers, and occupancy sensors and associated branch circuits.
 2. Provide all exterior building mounted fixture and associated branch circuits.
 3. Provide exit light fixtures and both interior and exterior emergency light fixtures.
 4. Provide lighting control panel and all programming etc as required per construction documents and IECC 2021.

- F. Telecommunications:
 - 1. Provide junction boxes and conduit for phone and data outlets. Provide (2) CAT 6 cables to each data outlet shown unless otherwise indicated.
 - 2. Provide 3/4" plywood backboard. Paint with two coats of fire retardant paint on both sides.
 - 3. Provide two (2) CAT 6 cables to the fire alarm control panel
 - 4. Provide ladder rack as shown in main telecommunication room.
 - 5. Provide 2-post I.T. racks in main telecommunication room.
 - 6. Provide additional racks as indicated on plan. Provide fiber cabling to interconnect all racks within building to the main telecommunication room.
 - 7. Provide patch panels as required.
 - 8. Provide grounding bus bar as indicated.

- G. Fire Alarm:
 - 1. Landlord shall furnish fire alarm control panel Fire-lite ES-200X. Contractor shall install and connect.
 - 2. Provide visual and audio notification throughout including voice evacuation.
 - 3. Provide smoke detectors at all control panels, voice evacuation panels and booster panels.
 - 4. Provide duct mounted smoke detectors for all air units with greater than 2000 cfm air flow.
 - 5. Provide a monitor module for all sprinkler system tamper and flow switches.
 - 6. Provide a monitor module for sprinkler system hotbox heater power and tamper switches.

1.2 GENERAL CONDITIONS

- A. The General Conditions and Supplementary General Conditions are a part of this section of these Specifications. The Contractor is cautioned to read and be thoroughly familiar with all provisions of the General Conditions. These conditions shall be complied with in every aspect.

1.3 DEFINITIONS:

- A. The word "shall" where used, is to be understood, as mandatory and the word "should" as advisory. "May" is used in the permissive sense.
- B. Concealed: Concealed areas are those areas that cannot be seen by building occupants.
- C. Exposed: Exposed areas are all areas that are exposed to view by building occupants, including areas below counter tops, inside cabinets and closets, inside all equipment rooms, and areas outside the building exterior envelope.
- D. Feeder: Feeder consists of both conduit and wiring installed above or below grade
- E. Provide: Provide shall including furnishing, installing, and connecting the item or items referenced unless specifically indicated otherwise.

1.4 QUALITY ASSURANCE

- A. General:
 - 1. Every effort has been made by the Engineer to clearly indicate all devices/equipment requiring an electrical/data connection. It is the intent of the Engineer that all light fixtures be powered and controlled, that all devices and equipment be circuited to a panelboard of appropriate voltage and breaker of MOCP not exceeding manufacturer's specifications. That all communications, security, and fire alarm devices are installed, wiring, and functioning properly.
 - 2. Where there is a conflict between the contract document and an applicable Code.

The Code shall govern except where the requirements of the contract documents are more stringent. The most stringent requirement shall apply.

3. All work shall be concealed unless specifically noted to be exposed.
 4. Coordinate the exact locations of electrical outlets and equipment with building features and equipment as indicated on architectural, structural, mechanical, plumbing, landscape, and food service drawings. Review any/all proposed changes in electrical device/equipment locations with Architect prior to rough-in. Architect may direct relocation of outlets before rough-in, up to ten (10) feet from the position indicated, without additional cost. Remove and relocate outlets placed in unsuitable locations when requested by the Architect, at no additional cost.
 5. Resolve, in writing, any code violation discovered in contract documents with the Engineer prior to bidding. After award of the contract, Contactor shall make any correction or addition necessary for compliance with applicable codes at no additional cost.
- B. An approved contractor for the work under this division shall be:
1. A licensed electrical contractor in the jurisdiction in which the work shall be performed.
 2. Able to furnish evidence of having contracted for and installed not less than three (3) systems of comparable size and type that have served their Owners satisfactorily for no less than three (3) years.
- C. All work, materials and equipment shall comply with the latest applicable codes, local ordinances, and UL requirements.
- D. Provide new products of manufacturers regularly engaged in production of such equipment. Provide the manufacturer's latest standard design for the type product specified. All new products shall be listed for the use shown on drawings.
- E. Equipment shall be delivered with a factory-applied finish so that no additional field painting is required.
- F. Equipment shall be selected to conform the building space limitations. Do not provide equipment that cannot meet the arrangement requirements shown on plans. Contractor shall submit room layouts with submitted items shown drawn to scale. Submittals will be rejected without floor plan Drawings showing submitted items.
- G. All equipment included in the service and distribution specifications shall be provided by the same manufacturer.
- H. Manufacturer names and model numbers are subject to change. Contractor shall verify them with manufacturer's representative prior to ordering any product or equipment.

1.5 GENERAL REQUIREMENTS

- A. The Contractor is referred to all of the Drawings for building construction as well as the electrical Drawings.
- B. The Contractor shall examine the site and shall verify to his own satisfaction the location of all utilities, and shall adequately inform himself as to their relation to his work before entering into a Contract and he shall base his bid on any conditions, which may be encountered during the progress of the work.
- C. The Contractor shall furnish and install properly all materials, devices, equipment, supports, controls, appurtenances, etc., mentioned or required to make complete or satisfactory installations in working order whether shown or not. All electrical equipment shall be connected in accordance with manufacturer's instructions. All work shall be executed in a workmanlike manner and shall present a neat and mechanical appearance

- when completed.
- D. The Contractor shall provide finished to match approved samples; all exposed finishes shall be approved by the Architect. Submit color samples as required.

1.6 APPLICABLE GENERAL CODES AND REGULATIONS

- A. All electrical work and equipment, in whole or in part, shall conform to the applicable portions of the following specifications, codes and regulations in effect on that date of invitation for bids, and shall form a part of this specification.
- B. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition.
- C. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.
1. NFPA 70, National Electrical Code
 2. National Fire Codes:
 - a. NFPA 70E, Electrical Safety Requirements for Employee Workplaces
 - b. NFPA 72, National Fire Alarm Code
 - c. NFPA 77, Static Electricity
 - d. NFPA 101, Life Safety Code
 - e. NFPA 110, Emergency and Standby Power Systems
 3. Occupational Safety and Health Regulations (OSHA).
 4. NFPA Standards in effect shall be as listed or adopted by the appropriate authority having jurisdiction.
 5. American National Standards Institute (ANSI)
 6. Institute of Electrical and Electronics Engineers (IEEE)
 7. Local, City and State Codes and Ordinances
 8. Regulations and standards of the Electric Utility Company
 9. National Electrical Safety Code (NESC)
 10. National Electrical Manufacturers Association (NEMA)
 11. Insulated Power Cable Engineers Association (IPCEA)
 12. International Building Codes (IBC)
 13. International Energy Conservation Codes (IECC)
- D. Equipment that has been inspected and approved by the Underwriter's Laboratory shall bear its label or appear on its list of approved apparatus.

1.7 DRAWINGS

- A. Plans and detail sketches are submitted to limit, explain, and define conditions, specified requirements, conduit sizes, and manner of erecting work. The Contractor is cautioned to field check and verify all existing conditions before bidding, as no extra compensation will be allowed for conditions found different than represented in the construction drawings and/or specifications. Written approval of the Architect shall be obtained prior to any alterations or additions to specified work.
- B. Structural or other conditions may require certain modifications from the manner of installation shown, and such deviations are permissible and shall be made as required, but specified sizes and requirements necessary for satisfactory operations shall remain unchanged.
- C. The drawings and these specifications are complementary to each other and what is called for by one shall be binding as if called for by both.
- D. General arrangement of work is indicated on plans. Due to the small scale of the drawings, offsets, fittings, and boxes required are not all indicated; provide fittings, boxes, etc., as needed in accordance with codes and accepted practices.

1.8 SUPERVISION

- A. The Contractor shall personally or through an authorized and competent representative, constantly supervise the work from beginning to completion and final acceptance. So far as possible, he shall keep the same foreman and workmen throughout the project duration.
- B. During its progress, the work shall be subject to inspection by representatives of the Architect or Engineer, at which times the Contractor shall furnish required information.
- C. It is not the Architect's or Engineer's duty to direct or guarantee the work of the Contractor, but to assist the Owner in obtaining a complete building in accordance with plans, specifications and addenda and to furnish engineering services in accordance with recognized practices.

1.9 PRIOR APPROVALS

- A. The Contractor shall base his proposal on materials as specified herein. Any references to a specific manufacturer or trade name is made to establish a standard of quality and to define a type of product and in no way is intended to indicate a preference for a particular manufacturer. It is the intent of these specifications to allow all manufacturers of equipment, products, etc., judged equal to the specified product to bid on a competitive basis.

1.10 MEASUREMENTS

- A. The Contractor shall verify all measurements and shall be responsible for the correctness of same, before ordering any materials or doing any work. No extra charge or compensation will be allowed for any differences between the actual measurements and those indicated on the drawings.

1.11 LAWS, PERMITS AND FEES

- A. The entire electrical work shall comply with the rules and regulations of the City, Parish, and State, including the State Fire Marshal and State Board of Health, whether so shown on plans or not. The Contractor shall pay fees for permits, inspections, etc., and shall arrange with the inspecting authorities all required inspections.

1.12 SITE INSPECTION

- A. The Contractor shall visit the site and familiarize himself with difficulties attendant to the successful execution of the work before bidding. Failure to visit the site shall not relieve the Contractor of the extent or conditions of the work required of him.

1.13 TEMPORARY FACILITIES

- A. The Contractor shall provide all temporary power and lighting for construction purposes. Installation of temporary power shall be in accordance with NEC Article 527.
- B. Temporary facilities, wire, lights, and devices are the property of the contractor and shall be removed by the Contractor at the completion of the Contract.

PART 2 PRODUCTS

2.1 MATERIAL AND EQUIPMENT

- A. All materials, equipment, and accessories installed under this Contract, whether approved or not, shall be new and shall conform to all rules, codes, etc., as

recommended or adopted by the National Association(s) governing the manufacture, rating and testing of such materials, equipment, and accessories.

- B. Product Substitutions
 1. If item of equipment or device offered as Substitution differs in dimension or configuration from that indicated in the Contract Documents, provide, as part of the substitution submittal, a drawing that shows that the equipment or devices proposed for Substitution can be installed in the space available without interfering with other trades or with access requirements for operations and maintenance in the completed project. Drawings shall be of appropriate scale but shall not be smaller than a scale of 1/4-inch equals one foot.
 2. Where substitute equipment or devices requires different arrangement or connections from that indicated in the Contract Documents, install the equipment or devices to operate properly and in accordance with the requirements of the Contract Documents. Make incidental changes necessary in piping, ductwork or wiring which results from the inclusion of the substitute equipment or device without any additional cost to the Owner. Pay all additional costs incurred by other trades in connection with changes required by the inclusion of the substituted equipment or device in the Work.

2.2 SHOP DRAWINGS & SUBMITTALS

- A. Shop drawings shall be taken to mean detailed drawings with dimensions, schedules, weights, capacities installation details, and pertinent information that will be needed to describe the material or equipment in detail.
 1. Shop drawings shall be prepared using computerized digital software compatible with AutoDesk's AutoCAD
 2. Submit hardcopy of Shop Drawings in the quantity as required under Division 01. Hardcopies of Shop Drawings shall have each sheet clearly labeled with a unique sheet identification number.
 3. In addition to hardcopies required by Division 01, submit one copy of Shop Drawings in electronic format on Flash Drive. Files contained shall be named to correspond with the sheet names contained in the hardcopy set. Files on shall include both AutoCAD compatible source files and files printed to Portable Document Format (.pdf).
- B. Submittals shall be taken to mean catalog cuts, general descriptive information, catalog numbers, and manufacturer's name.
- C. Review of submittals or shop drawings shall not remove the responsibility for furnishing materials or equipment of proper dimensions, quantity and quality; nor will such review remove the responsibility for error in the shop drawings or submittals.
- D. Assume all costs and liabilities, which may result from the ordering of any material, or equipment prior to the review of the shop drawings or submittals, and no work shall be done until the shop drawings or submittals have been reviewed. In case of correction or rejection, resubmit until such time as they are accepted by the Owner's representative and such procedures will not be cause for delay. After the final review, 6 copies will be supplied if requested.
- E. Shop drawings and submittals will be returned unchecked if the specific items proposed are not clearly marked, or if the general Contractor's approval stamp is omitted.
- F. Shop drawings, unless mark-ups are very trivial, will not be returned, "No Exception Taken". They will be returned for re-submittal as many times as necessary, however, the Contractor shall be back charged for engineering review time beginning with the second resubmittal. Therefore, the Contractor should make every effort to comply with the requirements of this Project on the first submittal in order to avoid project delays.

- G. The Contractor shall submit to the Architect complete descriptive and dimensional data on the following items for review and approval when specified or provided:
1. Cable Tray
 2. Disconnect Switches
 3. Enclosed Circuit Breakers
 4. Fire Alarm System Panels, Initiation Devices, and Annunciation Devices
 5. Fire Rated Cables and Connectors
 6. Lighting Controls and Occupancy Sensors
 7. Lighting Fixtures
 8. Panelboards and enclosures
 9. Surface Raceways
 10. Surge Protection Devices
 11. Switchboards
 12. Wiring Devices
 13. Manual Transfer Switches

PART 3 METHODS OF INSTALLATIONS

3.1 CONTRACTOR COORDINATION

- A. The Drawings are diagrammatic in nature. Cooperate with other trades so the interferences of facilities and equipment will be avoided.
- B. Contractor to coordinate with door hardware provider, architect and owner prior to installation of any devices associated with doors to verify door operational requirement, placement of proximity readers, motion sensors, door switches, fire alarm control, magnetic locks, hold open devices, etc..
- C. Contractor to coordinate with architectural millwork shop drawings prior to rough-in for locations of under counter lighting to be installed in and around millwork. No receptacles shall be installed in an enclosed cabinet unless noted on the drawings. Outlets for refrigerators, microwaves, etc. shall be installed in the space identified on the millwork shop drawings.
- D. Space allocations for materials, equipment and devices have been made on the basis of present and known future requirements and the dimensions of items of equipment or devices of a particular manufacturer. Verify that all materials, equipment and devices proposed for use on this Project are within the constraints of the allocated space.
- E. Coordinate arrangement, mounting, and support of electrical equipment:
1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 3. To allow right of way for piping installed at required slope. So, connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- F. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

3.2 OPENINGS, CUTTING AND PATCHING

- A. Cut all openings as required for the electrical work. Patching will be done by the various crafts whose work is involved. Furnish and install all necessary sleeves, thimbles, hangers, inserts, etc., at such times and in such a manner as not to delay or interfere with the work of other Contractors. Caulk, flash or otherwise make weatherproof all

penetrations through the roof and exterior walls.

- B. Where conduit, cable or other items that are provided for under this contract penetrate fire rated walls or floors, the Contractor is to seal around the item to maintain the integrity of the rated system.

3.3 PAINTING

- A. Painting shall be performed as described in the painting specifications. No painting will be required by the Contractor except for touch-up of factory finishes on equipment furnished under this contract.

3.4 INSTALLATION

- A. Housekeeping Pads: All floor and ground mounted electrical equipment - panels, switchboards, motor control centers, transformers, etc. shall be installed with a reinforced concrete housekeeping pad, whether shown on the drawings or not. The pad shall extend 4" above either the finished floor or final grade (as applicable), have 45 degree chamfered edges, and be constructed of 3000psi concrete. The pad shall extend 4" beyond the edge of the respective electrical equipment. Concrete shall have smooth steel trowel finish.
- B. Equipment must be leveled and set plumb. Use corrosion resistant mounting hardware. For sheet metal enclosures mounted against a wall provide corrosion-resistant spaces to separate the wall by 1/4 inch or by 3 inches of air for freestanding units.
- C. Unused knockouts on panels and boxes shall be covered with approved cover plates manufactured for the purpose.

3.5 TESTS AND INSPECTIONS

- A. The Contractor shall assist in making periodic inspections or tests required by the Architect or Engineer. When requested, the Contractor shall provide the assistance of foremen and qualified craftsmen for reasonable duration of each test, etc.
- B. The contract will not be declared to be substantially complete until all of the following conditions are satisfied.
 1. the functional operation of the subsystems have been demonstrated and verified and reports have been provided, reviewed and accepted.
 2. The "As-Built" drawings have been submitted, reviewed and accepted by the Architect / Owner / Owner's Construction Representative.

3.6 SAFETY PRECAUTIONS DURING CONSTRUCTION

- A. It shall be the Contractor's responsibility to furnish and install proper guards and instruction signs for prevention of accidents and to provide and maintain for the duration of construction any installations needed for safety of life and property.

3.7 CONNECTIONS

- A. This Contractor shall be responsible for providing electrical service to all devices of the heating and air conditioning system, and is referred to the mechanical plan for the exact location of the various devices.
- B. Mechanical Controls: Provide 120VAC power connections as required to components of Mechanical Control system. Coordinated quantity of circuits, connection requirements and locations between trades and with provisions of Divisions 21, 22, and 23 sections.
- C. Security and Access Control: Where the Drawings indicate a 120VAC circuit in a general

area labeled for security or access control use, the intent is for this circuit to be extended and connected to the security or access control device in that general area in coordination with other trades. Coordinated connection requirements and locations between trades and with Owner's Security vendor prior to installation.

- D. Motors and Motor Connections: Motors for driven equipment are specified in Divisions 21, 22, and 23. Provide connections as follows, unless otherwise indicated:
1. Equipment provided with factory installed disconnecting means: Upon installation of motor and associated equipment, Provide the electrical installation in accordance with approved wiring diagrams and manufacturer's written instructions.
 2. Equipment furnished with factory disconnecting means: Upon installation of motor and associated equipment, Install factory furnished disconnecting means and provide the electrical installation in accordance with approved wiring diagrams and manufacturer's written instructions.
 3. Equipment not furnished with factory installed disconnecting means: Provide disconnect switch required in accordance with NFPA 70 or as indicated on the Drawings. Provide the electrical installation in accordance with approved wiring diagrams and manufacturer's written instructions.

3.8 LOAD BALANCING

- A. Balance load on all phases in each panel to within 10% of respective phase loads.

3.9 IDENTIFICATION OF EQUIPMENT

- A. Identification of Equipment: Refer to specification 26 05 53 Identification for Electrical Equipment.

3.10 COMPLETION

- A. The Contractor shall leave all electrical equipment with proper connections, and in proper working order. He shall test the entire electrical system to show that it is properly installed. Contractor shall leave all panels and switches completely fused or complete with circuit breakers.

3.11 RECORD DRAWINGS

- A. The Contractor shall furnish one (1) complete set of drawings on which any changes in the work shall be shown. In addition to changes in work contractor shall clearly indicate routing of all feeders both above and below ground. All underground conduit shall be noted on drawings to show "as built" locations. These drawings must be turned over to the Architect prior to final acceptance of the work.

3.12 GUARANTEE

- A. The Contractor shall guarantee to keep the entire electrical system as installed by him or his subcontractors in repair and in perfect working order for one (1) year from the date of the final Certification of Final Acceptance, and shall furnish free of cost to the Owner, all material and labor necessary to comply with the above guarantee; said guarantee shall be based upon defective material and workmanship. In any case where equipment has a factory warranty exceeding this one-year limit, the full extent of the warranty shall apply.

3.13 CLEANING

- A. When all work has been finally tested, the Contractor shall clean all fixtures, equipment, conduits, ducts, and all exposed work. All cover plates and other finished products shall be thoroughly cleaned.

3.14 INSTRUCTION MANUALS

- A. The Contractor shall provide three (3) operating and maintenance instruction manuals on all systems and equipment installed in the electrical work.
- B. The Contractor shall provide (3) copies of all warranties and guarantees for systems, equipment, devices, and materials.

3.15 ADDITIONAL DEVICES

- A. The Contractor shall include in the price for this project the costs to furnish and installed devices/systems with described below. Any device/system not used shall be returned to the owner at the completion of construction. A credit shall be given for the un-used labor and materials at the completion of the project.
- B. The additional devices/systems included in bid pricing are as follows:
 - 1. Fire Alarm: All devices below shall be complete with conduit, wiring any/all associated programming and any applicable submittal documents for State Fire Marshal Review.
 - a. Three (3) speaker/strobe alarm devices
 - b. Two (2) manual pull stations
 - c. Two (2) smoke detectors
 - d. Four (4) control modules
 - 2. Electrical Equipment:
 - a. Five (5) 5-20R duplex tamper resistant receptacles
 - b. Five (5) 5-20R duplex GFCI tamper resistant receptacles.
 - 3. Lighting:
 - a. Fixtures:
 - 1) Provide Five (5) fixture type A
 - 2) Provide Three (3) Fixture type AE
 - 4. Conduit and Wire: All of the below shall be provided with elbows, supports, couplers, connectors and boxes.
 - a. 1,000 feet of 3/4" EMT conduit with 4#10,
 - b. 300 feet of 1"EMT conduit with 4#6, 1#10

3.18 CONTRACTOR SPECIAL NOTE

- A. The Contractor is again cautioned to refer to all parts of these Specifications and all Drawings, not just electrical sections, and the individual cross references made to other standard specifications or details describing any electrical work, which may be required under these other sections. The Contractor is cautioned to note carefully any other sections which may reference electrical work in order for this Contractor to fully understand the wiring requirements and electrical work that is required. Any conflicts found between the electrical sections of these Specifications or Drawings shall be immediately directed to the General Contractor for clarification.
- B. These Specifications and the electrical Drawings size equipment, wire, conduit, etc. based on the horsepower of motors and/or wattages of equipment as shown on the plans or specified herein. The Contractor shall install electrical raceways, conductors, fuses, safety switches, breakers, contactors, starters or any other electrical equipment with the capacities to suit the horsepower and/or wattages of the equipment actually furnished and installed. The Contractor shall not furnish or install any electrical raceways, conductors, safety switches, contactors or motor starters of sizes smaller than those shown on the Drawings or specified herein. The Contractor shall coordinate with the various sections of the Specifications and/or Drawings and with the various Sub-Contractors to provide the properly sized equipment without additional cost to the Owner.

END OF SECTION

SECTION 260505

ELECTRICAL DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Provide all labor, material and equipment to perform all electrical demolition as specified and as shown on the Drawings.
 - 2. All equipment selected for demolition shall have power and communication cables de-energized and disconnected. All disconnected cables shall be removed.
 - 3. All Power and Lighting panels circuit breakers shall be relabeled as spare where power was once fed to demolished equipment.
 - 4. All conduit shall be disconnected and removed from demolished equipment.
 - 5. All concrete encased conduit and underground conduit shall remain in place. All concrete encased conduit and underground conduit that stubs through floors and walls shall be cut flush and concrete shall be patched.
 - 6. Contractor is responsible for making equipment scheduled for demolition safe for removal.
- B. Related Documents:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Owner's General Requirements, apply to this Section.

PART 2 PRODUCTS Not Used

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements and circuitry arrangements are as shown on the Drawings.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition work indicated on drawings are based on casual field observation and existing record documents. Report discrepancies to Engineer before disturbing any existing installation.
- D. The Contractor accepts existing conditions by starting demolition work.
- E. Contractor shall familiarize himself with the existing electrical site systems and with the work of all other trades and include all work necessary to comply with the intent of this section.
- F. It shall be understood that field conditions may be encountered during the execution of this contract which will require extension or relocation of existing systems or equipment which are not specifically shown on the drawings, but, which are required to meet the stated intent that the existing electrical system continue to function unaffected by the demolition and associated new construction. Contractor shall include such work as would normally be expected to accomplish the work.
- G. The bidder is required to visit the project site prior to submitting bid to verify the exact configuration of the electrical items being removed, relocated, or modified. No claims for extra work shall be accepted after awarding of bids for discrepancies between verifiable field conditions and the items shown on drawings if these items are readily verifiable.

- H. Should this contractor encounter field conditions which, in their opinion, were not verifiable by visual inspection of the site prior to submitting bids, they shall notify the Engineer immediately, in writing, and request a decision as to the scope of work. The Engineer shall provide the necessary interpretations and instructions in a reasonable time.

3.2 PREPARATION

- A. Coordinate electrical power outages with appropriate utility company and Owner. All outages must be scheduled with owner a minimum of 2-weeks in advance. Outages shall be scheduled as to minimize disruption and outage duration.
- B. Investigate the existing conditions of electrical system in walls, floors and ceilings scheduled for removal.
- C. Disconnect and deliver to the Owner those items requested to remain the Owner's property.
- D. Provide temporary wiring and connections to maintain existing systems in service where needed. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- E. Prior to any digging, boring, drilling or excavating on or adjacent to this site, identify location of existing utility lines through the services of a utility location outfit.

3.3 DEMOLITION OF ELECTRICAL FACILITIES

- A. Demolish electrical work under provisions of this section. All electrical items indicated to be removed shall remain Owner's property unless stated otherwise. All removed electrical items that the Owner does not wish to keep shall become Contractor's property and removed from the site.
- B. For demolition in buildings that are to be removed as part of demolition work:
 - 1. Remove abandoned wiring to source of supply.
 - 2. Disconnect electrical devices and equipment serving equipment that has been (or will be) removed.
 - 3. Fill with compacted soil any trench, hole or cavity created by the relocation or removal of any existing conduit, and pole concrete base.
- C. For demolition in buildings that are to remain in service after completion of demolition work:
 - 1. Remove exposed abandoned raceways.
 - 2. Repair adjacent construction and finishes damaged during demolition and extension work.
 - 3. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.
 - 4. Where new construction conflicts with existing electrical work which is to remain, relocate the electrical work involved.
 - 5. Where existing circuits are interrupted by demolition or new work, extend and reconnect those systems. Where those systems must remain in service during the execution of this contract, provide temporary connections until final connections are complete.
 - 6. Any parts of existing construction which are to remain and which are damaged during demolition and preparatory work or new construction work on the project shall be patched to match existing adjacent surfaces. Patching and finishing of such areas shall conform with all applicable requirements of other technical sections of these specifications, and shall match existing work in material, type, finish, etc.
 - 7. Equipment, circuits and utilities that remain, but that are served by feeders or

circuits being removed or altered shall be reconnected in accordance with the methods required by this specification and the NEC, without extra cost to the Owner.

8. All materials and equipment noted to be reused or relocated shall be cleaned, retested, repaired if necessary, modified if required, prepared for reuse, and be stored and protected from the outdoor environment on the site until it is time for re-installation.
9. Fill with compacted soil any trench, hole or cavity created by the relocation or removal of any existing conduit, and pole concrete base.
10. Remove all abandoned data cabling located above ceilings that are exposed during demolition.
11. Where demo of electrical equipment is shown this shall include demolition of any unused supports, housekeeping pads, and associated conduit/conductor.
12. Disconnect and remove all abandoned equipment including but not limited to panelboards, and disconnect switches.
13. Where labeling is required by project specifications contractor shall trace and label all circuits to remain that are affected by construction or demolition.

3.4 DISPOSAL OF DEMOLISHED MATERIALS

- A. Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 3. Transport demolished materials off Owner's property and legally dispose of them.

3.5 CLEANING AND REPAIR (FOR FACILITIES TO REMAIN IN SERVICE)

- A. General
 1. Clean and repair existing materials and equipment which remain or are to be reused.

END OF SECTION

SECTION 260519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. building wires and cables rated 600V and less
 - 2. Connectors, splices and terminations rated 600 V and less
 - 3. Sleeves and sleeve seals for cables

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70- Latest edition or edition enforced by state and local code authority.

PART 2 PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.
- B. Conductor Material: Copper unless indicated otherwise on Drawings; stranded conductor or solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.
- C. Conductor Insulation Types: Comply with NEMA WC 70 for Types THHN-THWN, XHHW, and SO, as indicated.
- D. Multiconductor Cables: Comply with NEMA WC 70; Exterior sheath color coded to differentiate cable voltages and quantity of phase conductors.
- E. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.
- F. Conductor Temperature Rating: Provide conductors with 75 degree C rating. For high temperature applications, provide conductors with temperature ratings in accordance with NDPA 70 for ambient condition.

PART 3 EXECUTION

3.1 CONDUCTOR AND INSULATION APPLICATIONS

- A. Service Entrance: Type THHN-THWN, single conductors in raceway.
- B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.

- C. Feeders Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and in Crawlspace: Type THHN- THWN, single conductors in raceway.
- E. Exposed Branch Circuits, including in Crawlspace: Type THHN-THWN, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway .
- G. Branch Circuits Concealed in Concrete and below Slabs-on-Grade: Type THHN-THWN, single conductors in raceway.
- H. Branch Circuits Installed below Raised Flooring: Type THHN-THWN, single conductors in raceway.
- I. Fire Alarm Cabling: Plenum rated, exposed. Secured per NFPA 70-760.
- J. Contractor to provide metal raceway in Patient Care Areas per 517.13. Raceway shall be installed as a redundant ground.
- K. Isolation Panel Branch Circuits Served from Isolation Panels: XHHW or XHHW-2
- L. Combining of more than three circuits in a conduit is not allowed. IE no more than three phase conductors.
- M. Single Phase Circuits: Provide a dedicated neutral. Sharing of neutrals is not allowed.
- N. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel,wire-mesh, strain relief device at terminations to suit application.

3.2 INSTALLATION

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Run feeders in continuous lengths, without joints or splices. Where continuous runs are impractical; obtain Engineer's approval for splice locations and application.
- C. Make joints in branch circuits only where circuits divide.
- D. Do not use gutters of panelboards as raceways, junction boxes, or pull boxes for conductors not terminating in said panelboards.
- E. Run conduits for emergency power conductors separate from all other wiring.
- F. Bundling Conductors: Bundle conductors in switchboards, panelboards, cabinets, and the like, using nylon ties made for the purpose. Bundle conductors larger than No. 10 in individual circuits. Smaller conductors may be bundled in larger groups.
- G. Terminations of multiple branch circuit conductors on a single circuit breaker is not acceptable.
- H. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours. Install all conductors in raceways, unless specifically noted otherwise.

- I. Support cables according to Section "Basic Electrical Materials and Methods."
- J. Identify and color-code conductors and cables according to Section "Identification for Electrical Equipment"
- K. Sizes:
 - 1. Provide conductors no smaller than No. 12 AWG, except for signal or control circuits.
 - 2. Use #10 AWG conductors for 20 amperage 120V circuits when the circuit conductors are longer than 75 feet.
 - 3. Use #10 AWG conductors for 20 amperage 277V circuits when the circuit conductors are longer than 200 feet.
 - 4. Provide neutral conductors of the same size as the phase conductor(s) for individual branch circuit homeruns.

3.3 WIRE PULLING

- A. Pull no conductors into conduits until all Work of a nature which may cause injury to conductors is completed.
- B. Follow manufacturers' recommendations for regulating temperature conditions of conductors prior to installation.
- C. Exercise care in handling and installing cables to avoid damage. Carefully form cables in equipment pull boxes. Form bends in cables larger than the minimum radii shown in the cable manufacturer's published data for minimum bends such that bends will not reduce the cable life.
- D. Provide suitable installation equipment to prevent abrasion and cutting of conductors by raceways during the pulling of conductors. Use ropes of polyethylene, nylon or other suitable non-metallic material to pull in feeders. Metallic ropes are prohibited.
- E. Before any wire is pulled into any conduit, thoroughly swab the conduit to remove all foreign material and to permit the wire itself to be pulled into a clean, dry conduit.
- F. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- G. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque- tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B
- B. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.
- C. Provide temperature ratings of connectors and splices to match wire rating.

END OF SECTION

SECTION 260526

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. NFPA 70 and IEEE C2 include basic grounding requirements for electrical safety. This Section supplements the minimum safety requirements of the Code with requirements for additional grounding and with optional grounding methods and materials for both power and electronic systems.
- B. This Section includes methods and materials for grounding systems and equipment, plus the following special applications:
 - 1. Underground distribution grounding.
 - 2. Common ground bonding with lightning protection system.

1.2 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For independent agency as defined in Division 26 Section "Common Work Results for Electrical".
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with UL 467 for grounding and bonding materials and equipment.
- D. Comply with NFPA 70
- E. Comply with IEEE C2
- F. Comply with ANSI/EIA/TIA-607

PART 2 PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper or Tinned-Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
 - 4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 5. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
 - 6. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
 - 7. Main Bonding Jumper: stranded copper conductors sized as indicated on Drawings.
 - 8. Grounding Electrode Conductor: stranded copper conductors sized as indicated on Drawings.
 - 9. Common Grounding Electrode Conductor: stranded copper conductors sized as indicated on Drawings.

- C. Grounding Bus: Rectangular bars of annealed copper, 1/4 by 4 inches (6 by 100 mm) in cross section, unless otherwise indicated; with insulators. Length as indicated on Drawings.

2.2 CONNECTORS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 5/8 inch (16 mm) diameter by 120 inches (3000 mm) long, unless otherwise indicated.

PART 3 EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install insulated solid conductor for No. 10 AWG and smaller, and insulated stranded conductors for No. 8 AWG and larger, unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 3/0 AWG minimum, unless otherwise indicated.
 - 1. Bury at least 30 inches (762 mm) below grade.
 - 2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct bank installation.
- C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.
- D. Grounding Bus: Install in electrical and telephone/communications equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
 - 1. Install bus on insulated spacers 1 inch (25 mm), minimum, from wall 6 inches (150 mm) above finished floor, unless otherwise indicated.
 - 2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.
- E. Conductor Terminations and Connections: Use the following connectors styles, unless otherwise indicated.
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Exothermic Welded connectors, except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Exothermic Welded connectors.
 - 5. Connections to Ufer Ground: Exothermic Welded connectors.
- F. Comply with ANSI-607 requirements for telephone/communications grounding riser

1. Provide two separate, independent, fully-sized grounding pathways to each telecommunication branch closets.

3.2 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

- A. Comply with IEEE C2 grounding requirements.
- B. Grounding Handholes: Install a driven ground rod through handhole floor, close to wall, and set rod depth so 4 inches (100 mm) will extend above finished floor. If necessary, install ground rod before handhole/manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches (50 mm) above to 6 inches (150 mm) below concrete. Seal floor opening with waterproof, nonshrink grout.
- C. Pad-Mounted Transformers and Switches: The following is a minimum if the utility company does not have requirements, otherwise meet the utility company requirements. Install two ground rods and a ground ring around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with transformer, switch, or substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for ground ring and for taps to equipment grounding terminals. Bury ground ring not less than 6 inches (150 mm) from the edge of foundation.
- D. Grounding Connections to Manhole Components: Bond exposed-metal parts such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields as recommended by manufacturer of splicing and termination kits

3.3 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
 1. Bond to each device, box, or luminaire, unless otherwise indicated.
 2. Conductor insulation of the same rating as the phase conductors, for all feeders and branch circuits. Install the grounding conductors in the raceway with related phase and neutral conductors.
 3. Where parallel conductors in separate raceways occur, provide a grounding conductor in each raceway that meets requirements of NFPA 70.
- B. Dry-Type Transformers: Install an insulated grounding conductor from the common point of connection of the transformer secondary neutral point and the transformer enclosure to the following:
 1. The nearest grounding electrode per NFPA 70, including but not limited to building steel where available.
 2. The grounding bus of the common electrode grounding system, located in the electrical equipment room.
- C. Enclosures: Install an insulated grounding conductor from grounding bushings to the frame of the enclosure, ground bus, and equipment grounding strap where each occurs. Install grounding bushings on all raceways terminating within electrical enclosures constructed of separate enclosure panels, which are not integrally welded together.
- D. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including but not limited to air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

- E. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- F. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
 - 1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4 (6-by-1000) grounding bus. Length as indicated on the drawings.
 - 2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

3.4 INSTALLATION

- A. Provide permanent service neutral and equipment grounding in accordance with NFPA 70 and subject to the following additional requirements.
- B. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- C. Comply with mounting and support requirements specified in Division 26 Section "Hangers and Supports for Electrical Systems."
- D. Connect the service neutral and equipment ground to a common point within the metallic enclosure containing the main service disconnecting means. Equipment grounds and the identified neutral of the wiring system shall not be interconnected beyond this point in the interior wiring system. From the common point of connection of the service neutral and the equipment ground, run in non-magnetic conduit a grounding electrode conductor without joint or splice to the grounding electrode system and connect it with an approved bolted pressure clamp.
- E. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
 - 3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.
 - 4. Where expansion joints or telescoping joints occur, provide bonding jumpers.
- F. Grounding and Bonding for Piping:
 - 1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
 - 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
 - 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- G. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of

associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.

- H. Ground Rods: Drive rods until tops are 12 inches (50 mm) below finished floor or final grade, unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor a minimum of 30-inches below grade unless otherwise indicated. Make connections without exposing steel or damaging coating, if any.
 - 2. For grounding electrode system, install at least three rods spaced at least two-rod lengths from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- I. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches (300 mm) deep, with cover.
 - 1. Test Wells: Install at least three test wells for each service, unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.
- J. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet (18 m) apart.
- K. Ufer Ground (Concrete-Encased Grounding Electrode): Fabricate according to NFPA 70, using a minimum of 20 feet (6 m) of bare copper conductor not smaller than No. 4 AWG.
 - 1. If concrete foundation is less than 20 feet (6 m) long, coil excess conductor within base of foundation.
 - 2. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building grounding grid or to grounding electrode external to concrete.

3.5 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components as specified in Division 26 Section "Identification for Electrical Systems."

3.6 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare certified test reports:
 - 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 - 2. Test completed grounding system at each location where a maximum at service disconnect enclosure grounding terminal, at ground test wells, at individual ground rods and locations where a ground-resistance level is specified,. Make tests at ground rods before any conductors are connected.
 - a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81.
- B. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.
 - 1. Report measured ground resistances that exceed the following values:
 - a. Building's Grounding Triad: 2 ohms or less.
 - b. Power and Lighting Equipment or System with Capacity 500 kVA and Less: 10 ohms.
 - c. Power and Lighting Equipment or System with Capacity 500 to 1000 kVA: 5 ohms.

- d. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
 - e. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).
 - f. Substations and Pad-Mounted Equipment: 5 ohms.
 - g. Manhole/Handhole Grounds: 10 ohms.
- C. Correct Deficiencies, Retest and Report:
- 1. Correct unsatisfactory conditions, and retest to demonstrate compliance; replace conductors, units, and rods as required to bring system into compliance.
 - 2. Prepare a report, certified by testing agency, which identifies components checked and describes results. Include notation of deficiencies detected, remedial action taken, and observations and test results after remedial action.

END OF SECTION

SECTION 260529

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 1. Hangers and supports for electrical equipment and systems.
 2. Construction requirements for concrete bases.

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. FMC: Flexible metal conduit.
- C. IMC: Intermediate metal conduit.
- D. RMC: Rigid metal conduit.
- E. RAC: Rigid aluminum conduit.
- F. RNC: Rigid nonmetallic conduit.
- G. RSC: Rigid Steel conduit.

1.4 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design supports for multiple raceways, raceways using NFPA 70 criteria and performance requirements and design criteria indicated.
 1. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
 2. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- B. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.5 SUBMITTALS

- A. Product Data: For the following:
 1. Steel slotted support systems.
 2. Nonmetallic slotted support systems.
- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
 1. Trapeze hangers. Include Product Data for components.
 2. Steel slotted channel systems. Include Product Data for components.
 3. Nonmetallic slotted channel systems. Include Product Data for components.
 4. Equipment supports.

5. Concrete Based for Equipment.

C. Welding certificates.

1.6 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Comply with NFPA 70.

1.7 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Coordinate installation of roof curbs, equipment supports, and roof penetrations. These items are specified in Division 07 Section "Roof Accessories."

PART 2 PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Allied Tube & Conduit.
- b. Cooper B-Line, Inc.; a division of Cooper Industries.
- c. ERICO International Corporation.
- d. GS Metals Corp.
- e. Thomas & Betts Corporation.
- f. Unistrut; Tyco International, Ltd.
- g. Wesanco, Inc.

2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.

3. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.

4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.

5. Channel Dimensions: Selected for applicable load criteria.

B. Nonmetallic Slotted Support Systems: Structural-grade, factory-formed, glass-fiber-resin channels and angles with 9/16-inch- (14-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c., in at least 1 surface.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Allied Tube & Conduit.
- b. Cooper B-Line, Inc.; a division of Cooper Industries.
- c. Fabco Plastics Wholesale Limited.
- d. Seasafe, Inc.

2. Fittings and Accessories: Products of channel and angle manufacturer and designed for use with those items.

3. Fitting and Accessory Materials: Same as channels and angles, except metal items may be stainless steel.

4. Rated Strength: Selected to suit applicable load criteria.

- C. Device Box Mounting Brackets and Stabilizer: Factory-fabricated sheet steel brackets for support of device boxes adjacent to or between studs.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper B-Line, Inc.; a division of Cooper Industries.
 - b. ERICO International Corporation.

- D. Through-Stud Cable and Raceway Support Clips: Factory-fabricated spring steel clip for cables or raceways where run horizontally through metal studs.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper B-Line, Inc.; a division of Cooper Industries.
 - b. ERICO International Corporation.

- E. Roof-mounted Raceway Support Blocking: Factory-fabricated support blocking for use under roof-mounted raceways. Wedge-shaped blocking constructed of 100% recycled UV-resistant Rubber with integral galvanized steel strut to accept raceway support clips.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper B-Line, Inc.; a division of Cooper Industries.
 - b. ERICO International Corporation.

- F. Tee Bar Grid Box Hanger: Factory-fabricated metal electrical box hanger for supporting boxes at locations between ceiling system t-grid components. Height adjustable for various electrical box depths. Attached to ceiling tee bar with screws or integral clamp for stability. Includes tab for independent support wire attachment.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper B-Line, Inc.; a division of Cooper Industries.
 - b. ERICO International Corporation.

- G. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

- H. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

- I. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

- J. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

- K. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Hilti Inc.

- 2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 3) MKT Fastening, LLC.
 - 4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.
2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
 3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
 5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
 6. Toggle Bolts: All-steel springhead type.
 7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

PART 3 EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Horizontal and Vertical Support Spacing for Raceway(s): Space supports for EMT, IMC, and RMC as required by NFPA 70, but in no case less than listed below:
 1. For raceways 1" diameter and larger, provide one hanger at 8'-0" on center.
 2. For raceways less than 1" diameter, provide one hanger at 5'-0" on center.
- C. Minimum Hanger Rod Size for Raceway Supports: Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- D. Single Raceways or Cables:
 1. For Raceways 1-1/4-inch (32mm) and smaller: Install adjustable steel band hanger suspended on threaded rod.
 2. For Raceways larger than 1-1/4-inch (30mm): Install trapeze-type supports fabricated with steel slotted support system suspended on threaded rods. Size trapeze members, including the suspension rods, based on the support required for the size, and loaded weight of the conduits.
 - a. Secure raceway or cable to support with two-bolt conduit clamps or single-bolt conduit clamps using spring friction action for retention in support channel.
- E. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future

without exceeding specified design load limits.

1. Secure raceways and cables to these supports with two-bolt conduit clampssingle-bolt conduit clamps using spring friction action for retention in support channel.
- F. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.
- G. Corrosive Areas: Provide non-metallic slotted support systems for supports installed in corrosive areas. Corrosive areas include, but are not limited to the following:
1. Pools and Pool Equipment Areas.
 2. Within 25-feet (7.62-m) of Cooling Towers and Air Cooled Chillers.

3.2 SUPPORT INSTALLATION

- A. Comply with NFPA 70, NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT IMC RMC EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
- C. Fasten junction, pull and devices boxes securely to the building construction, independent of raceway system.
- D. Install Device Box Mounting Brackets supported between two studs. Do not attached Receptacle boxes directly to a single stud.
- E. Install Through-Stud Cable and Raceway Support Clips where cables or raceways run horizontally through metal studs.
- F. Support raceways at a distance above suspended ceilings to permit removal of ceiling panels and luminaires.
- G. Locate raceways so as not to hinder access to mechanical equipment.
- H. Do not secure conductors, raceways, or supports to suspended ceiling hanger rods or wires.
- I. Install Tee Bar Grid Box Hanger supported between two ceiling grid tee bars where devices boxes are located flush in recessed suspended ceilings.
1. Install at least one independent support rod from box hanger to structure.
- J. Install Roof-mounted Raceway Support Blocking where raceways run on across roofing.
1. Coordinate installation of roof supports with items specified in Division 07 Section "Roof Accessories." Provide products compatible with rooftop materials included in the Work.
- K. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- L. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
1. To Wood: Fasten with lag screws or through bolts.
 2. To New Concrete: Bolt to concrete inserts.

3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 4. To Existing Concrete: Expansion anchor fasteners.
 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
 6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69 or Spring-tension clamps.
 7. To Light Steel: Sheet metal screws.
 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- M. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Cast-in-Place Concrete."
- C. Anchor equipment to concrete base.
 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Touchup: Comply with requirements in Division 09 painting Sections for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 260533

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. Related Sections include the following:
 - 1. Refer to architectural for firestopping materials and installation at penetrations through walls, ceilings, and other fire-rated elements.
 - 2. "Wiring Devices" for devices installed in boxes and for floor-box service fittings.

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. ENT: Electrical nonmetallic tubing.
- C. FMC: Flexible metal conduit.
- D. IMC: Intermediate metal conduit.
- E. LFMC: Liquidtight flexible metal conduit.
- F. LFNC: Liquidtight flexible nonmetallic conduit.
- G. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

- A. Product Data: For surface raceways, floor boxes, and cabinets.
- B. Coordination Drawings: Submit Coordination Drawings in accordance with Division 26 Section "Basic Electrical Requirements". Include the following:
 - 1. Raceway routing plans, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - a. Proposed cable pull points.
 - b. Structural members in the paths of conduit groups with common supports.
 - c. HVAC, plumbing items, and architectural features in the paths of conduit groups. Denote where systems share common supports.
 - d. Purposed splice locations.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70-Latest edition or edition enforced by state and local code

authority.

1.6 COORDINATION

- A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets, and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 PRODUCTS

2.1 METAL WIREWAYS

- A. Material and Construction: Sheet metal sized and shaped as indicated.
 - 1. Indoors: NEMA-1
 - 2. Outdoors: NEMA-3R
- B. Fittings and Accessories:
 - 1. Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
 - 2. Provide spring nuts or guards on all screws installed toward the inside to prevent wire insulation damage.
- C. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70 and UL 870.
- D. Wireway Covers:
 - 1. Hinged type unless access restrictions require screw-cover type.
 - 2. Flanged-and-gasketed as required for NEMA type
- E. Finish: Manufacturer's standard enamel finish.

2.2 SURFACE RACEWAYS

- A. Surface Metal Raceways: Galvanized steel with snap-on covers. Finish with manufacturer's standard prime coating and two coats of paint. Color by Architect.
- B. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC with texture and color selected by Architect from manufacturer's standard colors.
- C. Surface raceways used together with couplings, clips, bushings, straps, connectors, connection covers, elbows, boxes, extension boxes, fixture boxes, extension adapters, blank covers and all other required fittings; size to accommodate the conductors to be installed therein in each case.

2.3 BOXES, ENCLOSURES, AND CABINETS

- A. Floor Boxes: Cast metal, fully adjustable, rectangular with four separate wiring compartments for power outlets, phone and data outlets as indicated on the drawing.
 - 1. Provide products by the following manufactures or submit prior approval for equals.
 - a. Wiremold RFB4E Series
 - b. T&B 665 Series
 - 2. Covers shall be UL Listed to U.S. and Canadian safety standards for tile, carpet, wood, bare concrete and terrazzo floors. Covers shall be selected by the architect.
- B. Sheet Metal Pull and Junction Boxes: NEMA OS 1.

- C. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum, type FD with gasketed cover.
- D. Hinged-Cover Enclosures: with continuous hinge cover and flush latch.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.
 - 3. Ratings:
 - a. Indoor Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
- E. Cabinets:
 - 1. Hinged door in front cover with flush latch and concealed hinge.
 - 2. Key latch to match panelboards.
 - 3. metal barriers to separate wiring of different systems and voltage and
 - 4. Accessory feet where required for freestanding equipment.
 - 5. Feet: Provide accessory feet for free standing equipment.
 - 6. Ratings:
 - a. Indoor Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
- F. In Grade Enclosures, Boxes And Covers:
 - 1. required to conform to all test provisions of the most current ANSI/SCTE 77 for Tier 22 applications.
 - 2. When multiple "Tiers" are specified the boxes must physically accommodate and structurally support compatible covers while possessing the highest Tier rating.
 - 3. All covers are required to have the Tier level rating embossed on the surface. In no assembly can the cover design load exceed the design load of the box.
 - 4. Cover to be labeled per use of box, ie "Electrical, Communications, etc". Communications pull boxes shall be a minimum of 24"W X 36"L X 36 "D.

2.4 FACTORY FINISHES

- A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard prime- coat finish ready for field painting.

2.5 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: Comply with ANSI C80.1 and UL 6; Galvanized rigid steel, each length with a coupling on one end and thread protector on opposite end.
- B. Aluminum Rigid Conduit: Comply with ANSI C80.5 and UL 6A; Rigid aluminum, each length with a coupling on one end and thread protector on opposite end.
- C. IMC: Comply with ANSI C80.6. and UL 1242.
- D. Plastic-Coated Steel Conduit and Fittings: Comply with NEMA RN 1; PVC-coated RSC with 0.040 inch (1 mm), minimum coating thickness.
- E. EMT and Fittings: ANSI C 80.3 and UL 797
- F. FMC: Aluminum
- G. LFMC: Comply with UL 360; Flexible steel conduit with neoprene jacket and copper grounding strand.
- H. Conduit fittings for Hazardous (Classified) Locations: Comply with UL 886.

- I. Fittings for RSC, RAC and IMC: Provide factory made threaded couplings of same material as the conduit.
 - 1. Molded thermoplastic insulating bushing at all boxes and cabinets, with locknuts inside and outside box or cabinet. In wet locations, provide watertight hubs for conduit entry into enclosures.
 - 2. Thermoplastic insulated grounding bushing on all conduits where grounding bushings are required, with locknuts inside and outside the enclosure. In wet locations provide watertight hubs for conduit entry into enclosures.
 - 3. Provide bushings on all conduits 1" or larger.

- J. Fittings for EMT:
 - 1. Steel, set-screw or compression couplings.
 - 2. Steel, set-screw or compression insulated throat box connectors with molded thermoplastic insulating bushing at all boxes and cabinets, with locknuts inside box or cabinet.
 - 3. Steel, set-screw or compression insulated throat box connectors with thermoplastic insulated grounding bushing on all tubing where grounding bushings are required.
 - 4. Insulated throat material for fittings to be of a color that is easily distinguishable; clear thermoplastic throats are not acceptable.
 - 5. Provide bushings on all conduits 1" or larger.
 - 6. Provide thermoplastic bushings on all conduits for telecommunications, data, fire alarm cabling and similar.

- K. Fittings for FMC and LFMC:
 - 1. Adapters at connections between flexible and rigid conduit.
 - 2. Thermoplastic insulated throat, steel connectors at box or cabinet terminations.
 - 3. Insulated throat material for fittings to be of a color that is easily distinguishable; clear thermoplastic throats are not acceptable.

- L. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable:NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

- M. Joint Compound for RSC or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

PART 3 EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors:
 - 1. Exposed: RSC, RAC, or IMC.
 - 2. Concealed: RSC, RAC, or IMC.
 - 3. Underground, Single Run: RNC.
 - 4. Underground, Grouped: RNC.
 - 5. Emergency Feeders: RSC
 - 6. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 - 7. Boxes and Enclosures: NEMA 250, Type 3R, unless otherwise indicated.

- B. Indoors:
 - 1. Exposed, Not Subject to Physical Damage: EMT. Concealed: EMT.
 - 2. Exposed and Subject to Physical Damage: RSC, or IMC.
 - 3. Concealed within Masonry Walls: RSC, or IMC.
 - 4. Conductors over 600 volts: RAC, RSC, or IMC.
 - 5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except use LFMC

- in damp or wet locations.
- 6. Damp or Wet Locations above Ground: RAC, RSC, or IMC
- 7. Boxes and Enclosures: NEMA 250, Type 1, except as follows:
 - a. Damp or Wet Locations: NEMA 250, Type 4, stainless steel.
- C. Minimum Raceway Size:
 - 1. Branch Circuits: 3/4-inch (21mm) trade size
 - 2. Feeder Circuits: 3/4-inch (21mm)
- D. Provide minimum 1/2-inch (16-mm) conduit for controls circuiting.
- E. Raceway Fittings: Compatible with raceways and suitable for use and location.
 - 1. RAC, RSC and IMC: Use threaded fittings, unless otherwise indicated.
- F. Junction and Pull Boxes: Sheet steel boxes, unless noted or required otherwise.
 - 1. Provide boxes no smaller than 4 inches square and 1-1/2 inches deep.
 - 2. Size all junction and pull boxes in accordance with the NFPA 70, unless project conditions dictate use of larger boxes.
- G. Outlet and Device Boxes: Sheet steel boxes, unless noted or required otherwise.
 - 1. For Lighting Fixture Outlets: 4 inch square with raised fixture ring.
 - 2. For Wall Switches, Receptacles, and Communication Use: 4 inch square, one-piece. Use boxes with plaster rings in all plastered walls where wall thickness permits. Use boxes less than 1-1/2 inch deep only in locations where deep boxes cannot be accommodated by construction.
 - 3. Boxes Used Outdoors or in Damp/Wet Locations: Cast metal boxes with gasketed covers and threaded hubs.

3.2 INSTALLATION

- A. Install raceways a minimum of 6-inches (150 mm) away from parallel runs of flues, steam pipes, hot-water pipes, and other objects operating at high temperatures
- B. Install horizontal raceway runs above water and steam piping. Install raceways a minimum of 1-inch (25.4-mm) from pipe insulation.
- C. Complete raceway installation before starting conductor installation.
- D. Support raceways as specified in "Basic Electrical Requirements."
- E. Install temporary closures to prevent foreign matter from entering raceways.
- F. Recessed Boxes in Fire-Rated Partitions: For boxes located on opposite sides of same partition do not install boxes back-to-back; separate boxes with a minimum of 24 inch separation
- G. Recessed Boxes in partitions around Acoustically-Sensitive Spaces: For boxes located on opposite sides of same partition do not install boxes back-to-back; separate boxes with a minimum of 24 inch separation. Acoustically-Sensitive Spaces include, but are not limited to, the following:
 - 1. Exam Rooms
 - 2. Conference Rooms
- H. Do not install aluminum conduits in contact with concrete.
- I. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.

- J. Conceal conduit:
 - 1. EMT shall be installed within finished walls, ceilings, and floors, unless otherwise indicated.
 - 2. Install concealed raceways with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.
 - 3. On concealed conduit systems where boxes are not otherwise accessible, set boxes flush with finished surfaces for access, and provide overlapping covers.

- K. Raceways Embedded in Slabs: Install in middle 1/3 of slab thickness where practical and leave at least 2 inches (50 mm) of concrete cover.
 - 1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
 - 2. Space raceways laterally to prevent voids in concrete.
 - 3. Run conduit larger than 1-inch trade size (DN 27) parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.

- L. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.
 - 1. Run parallel or banked raceways together on common supports.
 - 2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

- M. Join raceways with fittings designed and approved for that purpose and make joints tight.
 - 1. Use insulating bushings to protect conductors.

- N. Terminations:
 - 1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
 - 2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

- O. Stub-up Connections:
 - 1. Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor.
 - 2. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches (150 mm) above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.
 - 3. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.
 - 4. Change from ENT to RAC, RSC, or IMC before rising above the floor.

- P. Flexible Conduit Connections:
 - 1. Use minimum of 72 inches at final connections to equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 - 2. Use LFMC in damp or wet locations subject to severe physical damage including mechanical equipment rooms, at motor or equipment locations at or near pumps, and when installed outdoors.
 - 3. Use LFMC in damp or wet locations not subject to severe physical damage.

- Q. Install covers on junction boxes and conduit bodies after wiring and connections are completed.

- R. Run conductors over 48 Volts in raceway, unless otherwise indicated.
- S. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.
- T. Pull Boxes:
 - 1. Install no more than the equivalent of three 90-degree bends and a maximum of 150 feet between pull points in any conduit run except for communications conduits, for which fewer bends are allowed.
 - 2. Provide boxes where shown and where necessary for the installation and pulling of cables and wires.
- U. Pull Wires:
 - 1. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength.
 - 2. Leave at least 12 inches (300 mm) of slack at each end of pull wire.
- V. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

3.3 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.4 CLEANING

- A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes.

END OF SECTION

SECTION 260553

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Furnish and install items for identification of electrical products installed under Division 26.

1.2 SUBMITTALS

- A. Product Data: For each electrical identification product indicated.
- B. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.
- C. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

1.3 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes and standards. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- C. Coordinate installation of identifying devices with location of access panels and doors.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 PRODUCTS

2.1 RACEWAY AND METAL-CLAD CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Color for Printed Legend:
 - 1. Power Circuits: Black letters on an orange field.
 - 2. Legend: Indicate system or service and voltage, if applicable.
 - a. Typical:
 - 1) Type: Example – AC 60 Hertz
 - 2) Load: Example – Lighting and Power
 - 3) Voltage: Example – 120VA / 1 Phase
 - b. As Required
 - 1) If more than one type of power is available in a conduit, then it shall be marked with the title "Electrical" on orange background.
 - 2) If used for control of HVAC conduit shall be marked with the title "Control" on an orange background
 - c. Conduit that contains communication systems shall have the exact content and title on blue background.

- C. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- D. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches (50 mm) wide; compounded for outdoor use.

2.2 CONDUCTOR IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide.
- B. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.3 UNDERGROUND-LINE WARNING TAPE

- A. Description: Permanent, bright-colored, continuous-printed, polyethylene tape.
 1. Not less than 6 inches (150 mm) wide by 4 mils (0.102 mm) thick.
 2. Compounded for permanent direct-burial service.
 3. Embedded continuous metallic strip or core.
 4. Printed legend shall indicate type of underground line.

2.4 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145
- B. Self-Adhesive Warning Labels: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.
- C. Baked-Enamel Warning Signs: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 7 by 10 inches.
- D. Warning label and sign shall include, but are not limited to, the following legends:
 1. Warning label and sign shall include, but are not limited to, the following legends:
 2. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
 3. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR ## INCHES." Verify work space required for specific project conditions with NFPA 70 and replace "##" in previous sentence with appropriate distance.
 4. Arc Flash Warning and Instructions: "WARNING – ARC FLASH AND SHOCK HAZARD. WEAR APPROPRIATE PPE. Determine appropriate protective clothing and personal protective equipment (PPE) for the task from NFPA 70E."

2.5 INSTRUCTION SIGNS

- A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. in. and 1/8 inch thick for larger sizes.
- B. Engraved legend with black letters on white face.
- C. Punched or drilled for mechanical fasteners.
- D. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.6 ONE-LINE DIAGRM NAMEPLATE

- A. Preprinted engraved, laminated acrylic or melamine plastics sign. Nominal size, 12 by 12 inches (305 by 305 mm) by 1/8 inch (3.2 mm) thick. Engraved legend with black letters on white face. Image on sign depicting equipment components in single-line diagram format, using symbols and letter designations consistent with final one-line bus diagram. Produce a concise visual presentation of principal equipment components and connections.

2.7 EQUIPMENT IDENTIFICATION LABELS

- A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch. Lettering and Background colors as indicated below:
 1. Power Circuits:
 - a. Normal: White lettering on Black background.
 2. Fire Alarm System: Black lettering on Red background.
 3. Fire-Suppression Supervisory and Control System: Yellow lettering on Red background.
 4. Combined Fire Alarm and Security System: Blue lettering on Red background.
 5. Security System: Blue lettering on Yellow background.
 6. Mechanical and Electrical Supervisory System: Green lettering on White background.
 7. Telecommunication System: Blue lettering on White background.

2.8 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Cable Ties : Fungus-inert, self-extinguishing, 1-piece, self-locking, Type 6/6 nylon cable ties.
 1. Minimum Width: 3/16 inch (5 mm)
 2. Tensile Strength: 50 lb (22.6 kg), minimum
 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
 4. Color: Black, except where used for color-coding.
- B. Paint: Paint materials and application requirements are specified in Division 09 painting Sections.
- C. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 EXECUTION

3.1 APPLICATION

- A. Branch-Circuit Conductor Identification: Where there are conductors for more than three branch circuits in same junction or pull box, use color-coding conductor tape. Identify each ungrounded conductor according to source and circuit number.
- B. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source and circuit number.
- C. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, signal, sound, intercommunications, voice, and data connections.
 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
 2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
 3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and Operation and Maintenance Manual.
- D. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply self-adhesive warning labels. Identify system voltage with

black letters on an orange background. Apply to exterior of door, cover, or other access.

1. Equipment with Multiple Power or Control Sources: Apply to door or cover of equipment including, but not limited to, the following:
 - a. Power transfer switches.
 2. Equipment Requiring Workspace Clearance According to NFPA 70: Unless otherwise indicated, apply to door or cover of equipment but not on flush panelboards and similar equipment in finished spaces.
 3. Arc Flash Warning Labels: Apply label to door or cover at all access point of equipment including, but not limited to, the following:
 - a. Disconnect switches
 - b. Panelboards
 - c. Power transfer equipment (ATS/MTS)
- E. Junction Boxes and Pull Boxes: Identify voltage, source, and circuit number(s) on cover of pull and junction boxes with hand-written legible block lettering using black permanent marking pen.
- F. Instruction Signs:
1. Operating Instructions: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.
 2. Emergency Operating Instructions: Install instruction signs with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer load shedding, Kirk Key Controlled Breakers.
- G. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. This applies to existing equipment that is modified during this project. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
1. Labeling Instructions:
 - a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where 2 lines of text are required, use labels 2 inches high.
 - b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
 - c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
 2. Equipment to Be Labeled Shall Include But Not Be Limited To:
 - a. Panelboards, electrical cabinets, and enclosures.
 - b. Access doors and panels for concealed electrical items.
 - c. Emergency system boxes and enclosures.
 - d. Disconnect switches.
 - e. Enclosed circuit breakers.
 - f. Power transfer equipment. (ATS/MTS)
 - g. Fire-alarm control panel and annunciators
 - h. All junction boxes. Label to include circuit numbers (panel and number).
 - i. All receptacle device plates shall be etched with circuit numbers. (panel and number).
 - j. All lighting switch plates shall have circuit numbers on the back of the plate. (panel and number).

Examples:

NORMAL 'HA' 480Y/277V	EMERGENCY SYSTEM 'ATS-LS' 480Y/277V	NORMAL 'T-LA' 75KVA, 480V to 208Y/120V
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FED FROM 'MDP'	FED FROM 'MDP' NORMAL FED FROM 'EMSB' EMERGENCY FEEDS 'LS-HA'	FED FROM 'HA' FEEDS 'LA'
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3. Provide for each feeder overcurrent protective device in each switchgear, switchboard, distribution panelboard, motor control center, and any other similar equipment furnished under this Division, identification as to the specific load that it serves.

H. Existing Panel Schedules: Any existing panel where a circuit was removed, relocated or added, the contractor shall provide a new panel schedule with updated information.

3.2 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach non-adhesive signs and plastic labels with screws and auxiliary hardware appropriate to the location and substrate.

F. System Identification Color Banding for Raceways and Cables: Each color band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.

G. Color-Coding for Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors.

1. Color shall be factory applied or for sizes larger than No. 1 AWG, if authorities having jurisdiction permit, field applied.

2. Colors for Grounding Conductors:

a. Equipment Grounding Conductor: Green.

b. Isolated Equipment Grounding Conductor: Green with Yellow Stripe.

3. Colors for 208/120-V Wye Systems:

a. Phase A: Black.

b. Phase B: Red.

c. Phase C: Blue.

d. Grounded Conductor (Neutral): White

4. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

H. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.

I. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches (400 mm) overall.

- J. Painted Identification: Prepare surface and apply paint according to Division 09 painting Sections.

END OF SECTION

SECTION 260572

OVERCURRENT PROTECTIVE DEVICE SHORT-CIRCUIT STUDY

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes a computer-based, fault-current study to determine the minimum interrupting capacity of circuit protective devices.

1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- B. One-Line Diagram: A diagram which shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- C. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.
- D. SCCR: Short-circuit current rating.
- E. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

1.4 ACTION SUBMITTALS

- A. Product Data: For computer software program to be used for studies.
- B. Other Action Submittals: Submit the following after the approval of system protective devices submittals. Submittals shall be in digital form.
 - 1. Short-circuit study input data, including completed computer program input data sheets.
 - 2. Short-circuit study and equipment evaluation report; signed, dated, and sealed by a qualified professional engineer.
 - a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.
 - b. Revised single-line diagram, reflecting field investigation results and results of short-circuit study.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Short-Circuit Study Specialist and Field Adjusting Agency.
- B. Product Certificates: For short-circuit study software, certifying compliance with IEEE 399.

1.6 QUALITY ASSURANCE

- A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable.
- B. Short-Circuit Study Software Developer Qualifications: An entity that owns and markets computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
 - 1. The computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.
- C. Short-Circuit Study Specialist Qualifications: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.
- D. Field Adjusting Agency Qualifications: An independent agency, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.1 COMPUTER SOFTWARE

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. SKM Systems Analysis, Inc.
 - 2. ETAP
- B. Comply with IEEE 399 and IEEE 551.
- C. Analytical features of fault-current-study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.
- D. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output.

2.2 SHORT-CIRCUIT STUDY REPORT CONTENTS

- A. Executive summary.
- B. Study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpretation of the computer printout.
- C. One-line diagram, showing the following:
 - 1. Protective device designations and ampere ratings.
 - 2. Cable size and lengths.
 - 3. Transformer kilovolt ampere (kVA) and voltage ratings.
 - 4. Motor and generator designations and kVA ratings.
 - 5. Switchgear, switchboard, motor-control center, and panelboard designations.
- D. Comments and recommendations for system improvements, where needed.

- E. Protective Device Evaluation:
 - 1. Evaluate equipment and protective devices and compare to short-circuit ratings.
 - 2. Tabulations of circuit breaker, fuse, and other protective device ratings versus calculated short-circuit duties.
 - 3. For 600-V overcurrent protective devices, ensure that interrupting ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
 - 4. For devices and equipment rated for asymmetrical fault current, apply multiplication factors listed in the standards to 1/2-cycle symmetrical fault current.
 - 5. Verify adequacy of phase conductors at maximum three-phase bolted fault currents; verify adequacy of equipment grounding conductors and grounding electrode conductors at maximum ground-fault currents. Ensure that short-circuit withstand ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
- F. Short-Circuit Study Input Data: As described in "Power System Data" Article in the Evaluations.
- G. Short-Circuit Study Output:
 - 1. Low-Voltage Fault Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:
 - a. Voltage.
 - b. Calculated fault-current magnitude and angle.
 - c. Fault-point X/R ratio.
 - d. Equivalent impedance.
 - 2. Momentary Duty Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:
 - a. Voltage.
 - b. Calculated symmetrical fault-current magnitude and angle.
 - c. Fault-point X/R ratio.
 - d. Calculated asymmetrical fault currents:
 - 1) Based on fault-point X/R ratio.
 - 2) Based on calculated symmetrical value multiplied by 1.6.
 - 3) Based on calculated symmetrical value multiplied by 2.7.
 - 3. Interrupting Duty Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:
 - a. Voltage.
 - b. Calculated symmetrical fault-current magnitude and angle.
 - c. Fault-point X/R ratio.
 - d. No AC Decrement (NACD) ratio.
 - e. Equivalent impedance.
 - f. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a symmetrical basis.
 - g. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a total basis.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Obtain all data necessary for the conduct of the study.
 - 1. Verify completeness of data supplied on the one-line diagram. Call any discrepancies to the attention of Engineer.
 - 2. For equipment provided that is Work of this Project, use characteristics submitted under the provisions of action submittals and information submittals for this Project.
 - 3. For relocated equipment and that which is existing to remain, obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers. The qualifications of technicians and engineers shall be qualified as defined by NFPA 70E.
 - 4. Obtain all arc flash information from the local utility in a timely manner. No extension of the contract time shall be permitted due to coordination with the local utility.

- B. Gather and tabulate the following input data to support the short-circuit study. Comply with recommendations in IEEE 551 as to the amount of detail that is required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.
1. Product Data for Project's overcurrent protective devices involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
 2. Obtain electrical power utility impedance at the service.
 3. Power sources and ties.
 4. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.
 5. For reactors, provide manufacturer and model designation, voltage rating, and impedance.
 6. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip, SCCR, current rating, and breaker settings.
 7. Generator short-circuit current contribution data, including short-circuit reactance, rated kVA, rated voltage, and X/R ratio.
 8. Busway manufacturer and model designation, current rating, impedance, lengths, and conductor material.
 9. Motor horsepower and NEMA MG 1 code letter designation.
 10. Cable sizes, lengths, number, conductor material and conduit material (magnetic or nonmagnetic).

3.2 SHORT-CIRCUIT STUDY

- A. Perform study following the general study procedures contained in IEEE 399.
- B. Calculate short-circuit currents according to IEEE 551.
- C. Base study on the device characteristics supplied by device manufacturer.
- D. The extent of the electrical power system to be studied is indicated on Drawings.
- E. Begin short-circuit current analysis at the service, extending down to the system overcurrent protective devices as follows:
1. To normal system low-voltage load buses where fault current is 10 kA or less.
 2. Exclude equipment rated 240-V ac or less when supplied by a single transformer rated less than 125 kVA.
- F. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Study all cases of system-switching configurations and alternate operations that could result in maximum fault conditions.
- G. The calculations shall include the ac fault-current decay from induction motors, synchronous motors, and asynchronous generators and shall apply to low- and medium-voltage, three-phase ac systems. The calculations shall also account for the fault-current dc decrement, to address the asymmetrical requirements of the interrupting equipment.
1. For grounded systems, provide a bolted line-to-ground fault-current study for areas as defined for the three-phase bolted fault short-circuit study.
- H. Calculate short-circuit momentary and interrupting duties for a three-phase bolted fault at each of the following:
1. Electric utility's supply termination point.
 2. Incoming switchgear.

3. Unit substation primary and secondary terminals.
4. Low-voltage switchgear.
5. Motor-control centers.
6. Control panels.
7. Standby generators and automatic transfer switches.
8. Branch circuit panelboards.
9. Disconnect switches.

3.3 ADJUSTING

- A. Make minor modifications to equipment as required to accomplish compliance with short-circuit study.

3.4 DEMONSTRATION

- A. Train Owner's operating and maintenance personnel in the use of study results.

END OF SECTION

SECTION 260573

OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes computer-based, overcurrent protective device coordination studies to determine overcurrent protective devices and to determine overcurrent protective device settings for selective tripping.

1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- B. One-Line Diagram: A diagram which shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- C. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.
- D. SCCR: Short-circuit current rating.
- E. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

1.4 ACTION SUBMITTALS

- A. Product Data: For computer software program to be used for studies.
- B. Other Action Submittals: Submit the following after the approval of system protective devices submittals. Submittals shall be in digital form.
 - 1. Coordination-study input data, including completed computer program input data sheets.
 - 2. Study and equipment evaluation reports.
 - 3. Overcurrent protective device coordination study report; signed, dated, and sealed by a qualified professional engineer.
 - a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Coordination Study Specialist and Field Adjusting Agency.
- B. Product Certificates: For overcurrent protective device coordination study software, certifying compliance with IEEE 399.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For the overcurrent protective devices to include in emergency, operation, and maintenance manuals.
 - 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 - a. The following parts from the Protective Device Coordination Study Report:
 - 1) One-line diagram.
 - 2) Protective device coordination study.
 - 3) Time-current coordination curves.
 - b. Power system data.

1.7 QUALITY ASSURANCE

- A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable.
- B. Coordination Study Software Developer Qualifications: An entity that owns and markets computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
 - 1. The computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.
- C. Coordination Study Specialist Qualifications: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.
- D. Field Adjusting Agency Qualifications: An independent agency, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.1 COMPUTER SOFTWARE DEVELOPERS

- A. Software Developers:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. SKM Systems Analysis, Inc.
 - b. ETAP
- B. Comply with IEEE 242 and IEEE 399.
- C. Analytical features of device coordination study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.
- D. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output. Computer software program shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.
 - 1. Optional Features:
 - a. Arcing faults.

- b. Simultaneous faults.
- c. Explicit negative sequence.
- d. Mutual coupling in zero sequence.

2.2 PROTECTIVE DEVICE COORDINATION STUDY REPORT CONTENTS

- A. Executive summary.
- B. Study descriptions, purpose, basis and scope. Include case descriptions, definition of terms and guide for interpretation of the computer printout.
- C. One-line diagram, showing the following:
 - 1. Protective device designations and ampere ratings.
 - 2. Cable size and lengths.
 - 3. Transformer kilovolt ampere (kVA) and voltage ratings.
 - 4. Motor and generator designations and kVA ratings.
 - 5. Switchgear, switchboard, motor-control center, and panelboard designations.
- D. Study Input Data: As described in "Power System Data" Article.
- E. Short-Circuit Study Output: As specified in "Short-Circuit Study Output" Paragraph in "Short-Circuit Study Report Contents" Article in Section 260572 "Overcurrent Protective Device Short-Circuit Study."
- F. Protective Device Coordination Study:
 - 1. Report recommended settings of protective devices, ready to be applied in the field. Use manufacturer's data sheets for recording the recommended setting of overcurrent protective devices when available.
 - a. Phase and Ground Relays:
 - 1) Device tag.
 - 2) Relay current transformer ratio and tap, time dial, and instantaneous pickup value
 - 3) Recommendations on improved relaying systems, if applicable.
 - b. Circuit Breakers:
 - 1) Adjustable pickups and time delays (long time, short time, ground).
 - 2) Adjustable time-current characteristic.
 - 3) Adjustable instantaneous pickup.
 - 4) Recommendations on improved trip systems, if applicable.
 - c. Fuses: Show current rating, voltage, and class.
- G. Time-Current Coordination Curves: Determine settings of overcurrent protective devices to achieve selective coordination. Graphically illustrate that adequate time separation exists between devices installed in series, including power utility company's upstream devices. Prepare separate sets of curves for the switching schemes and for emergency periods where the power source is local generation. Show the following information:
 - 1. Device tag and title, one-line diagram with legend identifying the portion of the system covered.
 - 2. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which the device is exposed.
 - 3. Identify the device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.
 - 4. Plot the following listed characteristic curves, as applicable:
 - a. Power utility's overcurrent protective device.
 - b. Medium-voltage equipment overcurrent relays.
 - c. Medium- and low-voltage fuses including manufacturer's minimum melt, total clearing, tolerance, and damage bands.
 - d. Low-voltage equipment circuit-breaker trip devices, including manufacturer's tolerance bands.
 - e. Transformer full-load current, magnetizing inrush current, and ANSI through-fault

- protection curves.
 - f. Cables and conductors damage curves.
 - g. Ground-fault protective devices.
 - h. Motor-starting characteristics and motor damage points.
 - i. Generator short-circuit decrement curve and generator damage point.
 - j. The largest feeder circuit breaker in each motor-control center and panelboard.
5. Series rating on equipment allows the application of two series interrupting devices for a condition where the available fault current is greater than the interrupting rating of the downstream equipment. Both devices share in the interruption of the fault and selectivity is sacrificed at high fault levels. Maintain selectivity for tripping currents caused by overloads.
 6. Provide adequate time margins between device characteristics such that selective operation is achieved.
 7. Comments and recommendations for system improvements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine Project overcurrent protective device submittals for compliance with electrical distribution system coordination requirements and other conditions affecting performance. Devices to be coordinated are indicated on Drawings.
 1. Proceed with coordination study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to coordination study may not be used in study.

3.2 PROTECTIVE DEVICE COORDINATION STUDY

- A. Comply with IEEE 242 for calculating short-circuit currents and determining coordination time intervals.
- B. Comply with IEEE 399 for general study procedures.
- C. The study shall be based on the device characteristics supplied by device manufacturer.
- D. The extent of the electrical power system to be studied is indicated on Drawings.
- E. Begin analysis at the service, extending down to the system overcurrent protective devices as follows:
 1. To normal system low-voltage load buses where fault current is 10 kA or less.
 2. Exclude equipment rated 240-V ac or less when supplied by a single transformer rated less than 125 kVA.
- F. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Study all cases of system-switching configurations and alternate operations that could result in maximum fault conditions.
- G. Transformer Primary Overcurrent Protective Devices:
 1. Device shall not operate in response to the following:
 - a. Inrush current when first energized.
 - b. Self-cooled, full-load current or forced-air-cooled, full-load current, whichever is specified for that transformer.
 - c. Permissible transformer overloads according to IEEE C57.96 if required by unusual loading or emergency conditions.
 2. Device settings shall protect transformers according to IEEE C57.12.00, for fault currents.
- H. Motor Protection:
 1. Select protection for low-voltage motors according to IEEE 242 and NFPA 70.

2. Select protection for motors served at voltages more than 600 V according to IEEE 620.
- I. Conductor Protection: Protect cables against damage from fault currents according to ICEA P-32-382, ICEA P-45-482, and protection recommendations in IEEE 242. Demonstrate that equipment withstands the maximum short-circuit current for a time equivalent to the tripping time of the primary relay protection or total clearing time of the fuse. To determine temperatures that damage insulation, use curves from cable manufacturers or from listed standards indicating conductor size and short-circuit current.
- J. Generator Protection: Select protection according to manufacturer's written recommendations and to IEEE 242.
- K. The calculations shall include the ac fault-current decay from induction motors, synchronous motors, and asynchronous generators and shall apply to low- and medium-voltage, three-phase ac systems. The calculations shall also account for the fault-current dc decrement, to address the asymmetrical requirements of the interrupting equipment.
 1. For grounded systems, provide a bolted line-to-ground fault-current study for areas as defined for the three-phase bolted fault short-circuit study.
- L. Calculate short-circuit momentary and interrupting duties for a three-phase bolted fault and single line-to-ground fault at each of the following:
 1. Electric utility's supply termination point.
 2. Switchgear.
 3. Unit substation primary and secondary terminals.
 4. Low-voltage switchgear.
 5. Motor-control centers.
 6. Standby generators and automatic transfer switches.
 7. Branch circuit panelboards.
- M. Protective Device Evaluation:
 1. Evaluate equipment and protective devices and compare to short-circuit ratings.
 2. Adequacy of switchgear, motor-control centers, and panelboard bus bars to withstand short-circuit stresses.

3.3 LOAD-FLOW AND VOLTAGE-DROP STUDY

- A. Perform a load-flow and voltage-drop study to determine the steady-state loading profile of the system. Analyze power system performance two times as follows:
 1. Determine load-flow and voltage drop based on full-load currents obtained in "Power System Data" Article.
 2. Determine load-flow and voltage drop based on 80 percent of the design capacity of the load buses.
 3. Prepare the load-flow and voltage-drop analysis and report to show power system components that are overloaded, or might become overloaded; show bus voltages that are less than as prescribed by NFPA 70.

3.4 MOTOR-STARTING STUDY

- A. Perform a motor-starting study to analyze the transient effect of the system's voltage profile during motor starting. Calculate significant motor-starting voltage profiles and analyze the effects of the motor starting on the power system stability.
- B. Prepare the motor-starting study report, noting light flicker for limits proposed by IEEE 141 and voltage sags so as not to affect the operation of other utilization equipment on the system supplying the motor.

3.5 POWER SYSTEM DATA

- A. Obtain all data necessary for the conduct of the overcurrent protective device study.
1. Verify completeness of data supplied in the one-line diagram on Drawings. Call discrepancies to the attention of Engineer.
 2. For new equipment, use characteristics submitted under the provisions of action submittals and information submittals for this Project.
 3. For existing equipment, whether or not relocated obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers. The qualifications of technicians and engineers shall be qualified as defined by NFPA 70E.
- B. Gather and tabulate the following input data to support coordination study. The list below is a guide. Comply with recommendations in IEEE 551 for the amount of detail required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.
1. Product Data for overcurrent protective devices specified in other Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
 2. Electrical power utility impedance at the service.
 3. Power sources and ties.
 4. Short-circuit current at each system bus, three phase and line-to-ground.
 5. Full-load current of all loads.
 6. Voltage level at each bus.
 7. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.
 8. For reactors, provide manufacturer and model designation, voltage rating, and impedance.
 9. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip and available range of settings, SCCR, current rating, and breaker settings.
 10. Generator short-circuit current contribution data, including short-circuit reactance, rated kVA, rated voltage, and X/R ratio.
 11. For relays, provide manufacturer and model designation, current transformer ratios, potential transformer ratios, and relay settings.
 12. Maximum demands from service meters.
 13. Busway manufacturer and model designation, current rating, impedance, lengths, and conductor material.
 14. Motor horsepower and NEMA MG 1 code letter designation.
 15. Low-voltage cable sizes, lengths, number, conductor material, and conduit material (magnetic or nonmagnetic).
 16. Medium-voltage cable sizes, lengths, conductor material, and cable construction and metallic shield performance parameters.
 17. Data sheets to supplement electrical distribution system diagram, cross-referenced with tag numbers on diagram, showing the following:
 - a. Special load considerations, including starting inrush currents and frequent starting and stopping.
 - b. Transformer characteristics, including primary protective device, magnetic inrush current, and overload capability.
 - c. Motor full-load current, locked rotor current, service factor, starting time, type of start, and thermal-damage curve.
 - d. Generator thermal-damage curve.
 - e. Ratings, types, and settings of utility company's overcurrent protective devices.
 - f. Special overcurrent protective device settings or types stipulated by utility company.
 - g. Time-current-characteristic curves of devices indicated to be coordinated.
 - h. Manufacturer, frame size, interrupting rating in amperes rms symmetrical, ampere

or current sensor rating, long-time adjustment range, short-time adjustment range, and instantaneous adjustment range for circuit breakers.

- i. Manufacturer and type, ampere-tap adjustment range, time-delay adjustment range, instantaneous attachment adjustment range, and current transformer ratio for overcurrent relays.
- j. Panelboards, switchboards, motor-control center ampacity, and SCCR in amperes rms symmetrical.
- k. Identify series-rated interrupting devices for a condition where the available fault current is greater than the interrupting rating of the downstream equipment. Obtain device data details to allow verification that series application of these devices complies with NFPA 70 and UL 489 requirements.

3.6 FIELD ADJUSTING

- A. Adjust relay and protective device settings according to the recommended settings provided by the coordination study. Field adjustments shall be completed by the engineering service division of the equipment manufacturer under the Startup and Acceptance Testing contract portion.
- B. Make minor modifications to equipment as required to accomplish compliance with short-circuit and protective device coordination studies.
- C. Testing and adjusting shall be by a full-time employee of the Field Adjusting Agency, who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters. Perform NETA tests and inspections for all adjustable overcurrent protective devices.

3.7 DEMONSTRATION

- A. Engage the Coordination Study Specialist to train Owner's maintenance personnel in the following:
 - 1. Acquaint personnel in the fundamentals of operating the power system in normal and emergency modes.
 - 2. Hand-out and explain the objectives of the coordination study, study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpreting the time-current coordination curves.
 - 3. Adjust, operate, and maintain overcurrent protective device settings.

END OF SECTION

SECTION 260574

OVERCURRENT PROTECTIVE DEVICE ARC-FLASH STUDY

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes a computer-based, arc-flash study to determine the arc-flash hazard distance and the incident energy to which personnel could be exposed during work on or near electrical equipment.

1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- B. One-Line Diagram: A diagram which shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- C. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.
- D. SCCR: Short-circuit current rating.
- E. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

1.4 ACTION SUBMITTALS

- A. Product Data: For computer software program to be used for studies.
- B. Other Action Submittals: Submit the following submittals after the approval of system protective devices submittals. Submittals shall be in digital form.
 - 1. Arc-flash study input data, including completed computer program input data sheets.
 - 2. Arc-flash study report; signed, dated, and sealed by a qualified professional engineer.
 - a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Arc-Flash Study Specialist and Field Adjusting Agency.
- B. Product Certificates: For arc-flash hazard analysis software, certifying compliance with IEEE 1584 and NFPA 70E.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance procedures according to requirements in NFPA 70E shall be provided in the equipment manuals.
- B. Operation and Maintenance Procedures: In addition to items specified in Section 017823 "Operation and Maintenance Data," provide maintenance procedures for use by Owner's personnel that comply with requirements in NFPA 70E.

1.7 QUALITY ASSURANCE

- A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable.
- B. Arc-Flash Study Software Developer Qualifications: An entity that owns and markets computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
 - 1. The computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.
- C. Arc-Flash Study Specialist Qualifications: Professional engineer in charge of performing the study, analyzing the arc flash, and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.
- D. Field Adjusting Agency Qualifications: An independent agency, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.1 COMPUTER SOFTWARE DEVELOPERS

- A. Software Developers:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. SKM Systems Analysis, Inc.
 - b. ETAP
- B. Comply with IEEE 1584 and NFPA 70E.
- C. Analytical features of device coordination study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.

2.2 ARC-FLASH STUDY REPORT CONTENT

- A. Executive summary.
- B. Study descriptions, purpose, basis and scope.
- C. One-line diagram, showing the following:
 - 1. Protective device designations and ampere ratings.
 - 2. Cable size and lengths.
 - 3. Transformer kilovolt ampere (kVA) and voltage ratings.

4. Motor and generator designations and kVA ratings.
 5. Switchgear, switchboard, motor-control center and panelboard designations.
- D. Study Input Data: As described in "Power System Data" Article.
- E. Short-Circuit Study Output: As specified in "Short Circuit Study Output" Paragraph in "Short-Circuit Study Report Contents" Article in Section 260572 "Overcurrent Protective Device Short-Circuit Study."
- F. Protective Device Coordination Study Report Contents: As specified in "Protective Device Coordination Study Report Contents" Article in Section 260573 "Overcurrent Protective Device Coordination Study."
- G. Arc-Flash Study Output:
1. Interrupting Duty Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:
 - a. Voltage.
 - b. Calculated symmetrical fault-current magnitude and angle.
 - c. Fault-point X/R ratio.
 - d. No AC Decrement (NACD) ratio.
 - e. Equivalent impedance.
 - f. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a symmetrical basis.
 - g. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a total basis
- H. Incident Energy and Flash Protection Boundary Calculations:
1. Arcing fault magnitude with and without required Arc Energy Reduction methods.
 2. Protective device clearing time.
 3. Duration of arc.
 4. Arc-flash boundary.
 5. Working distance.
 6. Incident energy.
 7. Hazard risk category.
 8. Recommendations for arc-flash energy reduction.
- I. Fault study input data, case descriptions, and fault-current calculations including a definition of terms and guide for interpretation of the computer printout.

2.3 ARC-FLASH WARNING LABELS

- A. Comply with requirements in Section 260553 "Identification for Electrical Systems." Produce a 3.5-by-5-inch thermal transfer label of high-adhesion polyester for each work location included in the analysis.
- B. The label shall have an orange header with the wording, "WARNING, ARC-FLASH HAZARD," and shall include the following information taken directly from the arc-flash hazard analysis:
1. Location designation.
 2. Nominal voltage.
 3. Flash protection boundary.
 4. Hazard risk category.
 5. Incident energy.
 6. Working distance.
 7. Engineering report number, revision number, and issue date.
- C. Labels shall be machine printed, with no field-applied markings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine Project overcurrent protective device submittals. Proceed with arc-flash study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to arc-flash study may not be used in study.

3.2 ARC-FLASH HAZARD ANALYSIS

- A. Comply with NFPA 70E and its Annex D for hazard analysis study.
- B. Preparatory Studies:
 - 1. Protective Device Coordination Study Report Contents: As specified in "Protective Device Coordination Study Report Contents" Article in Section 16402 "Overcurrent Protective Device Coordination Study."
- C. Calculate maximum and minimum contributions of fault-current size.
 - 1. The minimum calculation shall assume that the utility contribution is at a minimum and shall assume no motor load.
 - 2. The maximum calculation shall assume a maximum contribution from the utility and shall assume motors to be operating under full-load conditions.
- D. Calculate the arc-flash protection boundary and incident energy at locations in the electrical distribution system where personnel could perform work on energized parts.
- E. Include medium- and low-voltage equipment locations, except equipment rated 240-V ac or less fed from transformers less than 125 kVA.
- F. Safe working distances shall be specified for calculated fault locations based on the calculated arc-flash boundary, considering incident energy of 1.2 cal/sq.cm.
- G. Incident energy calculations shall consider the accumulation of energy over time when performing arc-flash calculations on buses with multiple sources. Iterative calculations shall take into account the changing current contributions, as the sources are interrupted or decremented with time. Fault contribution from motors and generators shall be decremented as follows:
 - 1. Fault contribution from induction motors should not be considered beyond three to five cycles.
 - 2. Fault contribution from synchronous motors and generators should be decayed to match the actual decrement of each as closely as possible (e.g., contributions from permanent magnet generators will typically decay from 10 per unit to three per unit after 10 cycles).
- H. Arc-flash computation shall include both line and load side of a circuit breaker as follows:
 - 1. When the circuit breaker is in a separate enclosure.
 - 2. When the line terminals of the circuit breaker are separate from the work location.
- I. Base arc-flash calculations on actual overcurrent protective device clearing time. Cap maximum clearing time at two seconds based on IEEE 1584, Section B.1.2.

3.3 POWER SYSTEM DATA

- A. Obtain all data necessary for the conduct of the arc-flash hazard analysis.
 - 1. Verify completeness of data supplied on the one-line diagram on Drawings and under "Preparatory Studies" Paragraph in "Arc-Flash Hazard Analysis" Article. Call discrepancies to the attention of Engineer.

2. For new equipment, use characteristics submitted under the provisions of action submittals and information submittals for this Project.
 3. For existing equipment, whether or not relocated, obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers.
- B. Electrical Survey Data: Gather and tabulate the following input data to support study. Comply with recommendations in IEEE 1584 and NFPA 70E as to the amount of detail that is required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.
1. Product Data for overcurrent protective devices specified in other Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
 2. Obtain electrical power utility impedance at the service.
 3. Power sources and ties.
 4. Short-circuit current at each system bus, three phase and line-to-ground.
 5. Full-load current of all loads.
 6. Voltage level at each bus.
 7. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in per cent, and phase shift.
 8. For reactors, provide manufacturer and model designation, voltage rating and impedance.
 9. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip and available range of settings, SCCR, current rating, and breaker settings.
 10. Generator short-circuit current contribution data, including short-circuit reactance, rated kVA, rated voltage, and X/R ratio.
 11. For relays, provide manufacturer and model designation, current transformer ratios, potential transformer ratios, and relay settings.
 12. Busway manufacturer and model designation, current rating, impedance, lengths, and conductor material.
 13. Motor horsepower and NEMA MG 1 code letter designation.
 14. Low-voltage cable sizes, lengths, number, conductor material and conduit material (magnetic or nonmagnetic).
 15. Medium-voltage cable sizes, lengths, conductor material, and cable construction and metallic shield performance parameters.

3.4 LABELING

- A. Apply one arc-flash label for 600-V ac, 480-V ac, and applicable 208-V ac panelboards and disconnects and for each of the following locations:
1. Motor-control center.
 2. Low-voltage switchboard.
 3. Switchgear.
 4. Medium-voltage switch.
 5. Control panel.

3.5 APPLICATION OF WARNING LABELS

- A. Install the arc-fault warning labels under the direct supervision and control of the Arc-Flash Study Specialist.

3.6 DEMONSTRATION

- A. Engage the Arc-Flash Study Specialist to train Owner's maintenance personnel in the potential arc-flash hazards associated with working on energized equipment and the significance of the arc-flash warning labels.

END OF SECTION

SECTION 262000

SERVICE AND DISTRIBUTION

PART 1 GENERAL

1.1 SYSTEM VOLTAGE

- A. The building service from the utility company shall be 208Y/120V 3Ø 4W

1.2 TERMINATIONS

- A. All wiring shall be sized based on 75°C rated conductors. All connectors shall be rated for 75°C in accordance with N.E.C. Article 110-14 requirements.

PART 2 PRODUCTS

2.1 SAFETY SWITCHES

- A. Furnish and install safety switches as shown on the Drawings. All switches shall be fused NEMA Heavy Duty Type HD and Underwriter's Laboratories listed. All switches shall have blades that are fully visible in the "OFF" position with the door open. Switches shall be dead-front construction with permanently attached arc suppressers. Lugs shall be UL listed for copper and aluminum conductor and front removable. All current carrying parts shall be plated to resist corrosion. Switches shall be quick-make, quick-break type. During operation of the switch, the movable contacts shall not be able to be restrained by the handle once the closing or the opening action of the contacts has been initiated. Switches shall have cover interlocks to prevent opening of the switch door while the switch is in the "ON" position or closing the switch with the door open. Switch shall have padlocking capabilities in the "OFF" position.
- B. Safety switches shall be rated 600 volts for 480 volt service and rated 240 volts for 208 volt service. Switches shall be motor rated when used for motor loads. Switches shall be NEMA 1 enclosed for indoor applications and NEMA 3R for outdoor or wet area locations.
- C. Switches used for service entrance shall be service entrance rated. Safety switches shall be furnished complete with fuses.
- D. Approved Manufacturers:
 - 1. Eaton
 - 2. Square D (Schneider Electric)
 - 3. ABB
 - 4. Siemens

2.2 FUSES

- A. All fuse holders shall be provided with dual-element, time-lag fuses as scheduled on the Drawings or as recommended by the equipment manufacturer. Fuses shall be rated 200,000 AIC. Fuses shall be Buss Fusetron, Economy Econ, or Gould Shawmut Tri-Onic for component protection and Buss Limitron, Economy Econolin, or Gould Shawmut Amp-Trap for circuit protection.

2.3 CIRCUIT BREAKER PANELBOARDS

- A. Panelboards shall be sized as shown on the drawings and schedules, and shall be the

bolted breaker panelboard type. Panelboards shall have copper bussing. Panelboards shall have door-in-door trim.

- B. All branch breakers are to be quick-make, quick-break (over center toggle device) with trip indication and common trip on all multiple breakers. Trip indication shall be clearly shown by breaker handle taking a position between "ON" and "OFF" position. Breakers shall be ambient compensated to carry full NEC load in 120 degree F room temperature. Panelboards shall have distributed phase busing throughout. Any two adjacent single pole breakers shall be replaceable by a two pole breaker, and any three adjacent single pole breakers shall be replaceable by a three pole breaker.
- C. Minimum interrupting capacity of breakers shall be as shown on panel schedules. No breakers shall be rated less than 10,000 RMS symmetrical amperes.
- D. Branch breakers shall be numbered 1, 3, 5, etc. from top to bottom beginning at the top of the left hand column so that #1 shall be on phase A, #3 on phase B, and #5 on phase C.
- E. Panelboards shall include main circuit breakers where indicated on plans and in the following conditions regardless of designation on plan:
 - 1. Panelboard is served from a transformer (utility or otherwise.) and no overcurrent protective device exists between the transformer and the panelboard.
 - 2. Panelboard is served from a wireway and no overcurrent protective device exists between the wireway and the panelboard.
- F. Approved Manufacturers:
 - 1. Eaton
 - 2. Square D (Schneider Electric)
 - 3. ABB
 - 4. Siemens

PART 3 EXECUTION

3.1 COORDINATION

- A. Contractor shall coordinate all service and distribution work with other crafts on the project.

3.2 TEST AND BALANCING

- A. At such times as the Architect directs, the Contractor shall conduct in the Architect's presence operating tests to demonstrate the electrical systems are installed and will operate properly and in accordance with the requirements of the specifications. The Contractor shall furnish instruments and personnel required for such tests. Any work that is found to be defective, or material that are found to vary from the requirements of the drawings or specifications shall be replaced by the Contractor without additional cost of the Owner.

3.3 EMERGENCY CIRCUITS

- A. All wiring for emergency power and lighting circuits shall be run in conduits independent of all other circuits or conductors. Emergency circuit installations shall be made in accordance with National Electrical Code Article 700.9.

3.4 EQUIPMENT FUSING

- A. All equipment shall be furnished complete with fuses as described herein and/or as

shown on the Drawings. Contractor shall furnish one set of spare fuses for each size fuse furnished on the project. Fuses shall be delivered to Owner prior to acceptance of project.

- B. Fusing for protective equipment shall be of the type specifically designed for the intended application. Fuses for service entrance rated equipment shall be Class L. Fuses for branch circuit protection shall be Class RK5 unless specified otherwise. Provide protective fuses as specifically required by the equipment manufacturer.

3.5 INSTALLATION

- A. The Electrical Contractor shall place a sign at the Main Switchboard indicating the type and location of the emergency generator in accordance with National Electrical Code Article 702.8(A) requirements.
- B. Disconnecting means shall be provided for each motor and motor controller, and shall be located within site from the controller and motor locations in accordance with National Electrical Code Article 430.102 requirements.

END OF SECTION

SECTION 262550

GENERATOR DOCKING STATION

PART 1 GENERAL

- 1.1. GENERAL
- 1.2. QUALITY ASSURANCE
 - A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 - B. ETL/UL LISTED to 1008 Standards
 - C. UL 50 LISTED
- 1.3. COORDINATION
 - A. Coordinate layout and installation of Generator Docking Station, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels
- 1.4. GUARANTEE/WARRANTY
 - A. Manufacturer Warranty shall be provided for a minimum of 1 Year,
 - B. The equipment installed under this contract shall be left in proper working order
 - C. New materials and equipment shall be guaranteed against defects in composition, design or workmanship. Guarantee certificates shall be furnished.

PART 2 PRODUCTS

- 2.1 DOCKING STATION
 - A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. TRYSTAR
 - 2. ASCO
- 2.2 GENERAL REQUIREMENTS
 - A. Enclosure
 - 1. NEMA 3R Rain-Tight Aluminum Enclosure
 - a. Pad-lockable front door shall include a hinged access plate at the bottom for entry of temporary cabling that prevents unauthorized tampering while in use.
 - b. NEMA 3R Integrity shall be maintained while temporary cabling is connected during use
 - c. Front and Side shall be accessible for maintenance
 - d. Top, Side, and Bottom shall be accessible for permanent cabling
 - 2. Powder coat
 - a. Paint after fabrication shall be Hammer tone Gray
 - B. Phase, Neutral, and Ground Busbar
 - 1. Material: Silver-plated Copper

2. Equipment Ground Bus: bonded to box.
 3. Isolated Ground Bus: insulated from box.
 4. Ground Bus: 50% of phase size.
 5. Neutral Bus: Neutral bus rated 100 percent of phase bus.
- C. Temporary generator connectors shall be Camlok style mounted on gland plate.
1. Camlok shall be 16 Series model and color coded according to system voltage requirements.
 2. Camlok connections shall be Bus Bar Style, Cabling or Double Set Screw is not acceptable
 3. Camlok connection shall be protected against accidental contact while not in use
- D. Permanent Connection shall be factory installed broad range set-screw mechanical type, located behind a physical barrier
- E. Short Circuit & Withstand Rating
1. Shall be minimum 65 KAIC unless otherwise indicated on drawings
- F. Voltage & Amperage
1. 208Y/120V 3Ø 4W
- G. Factory Installed Phase Rotation Monitor Device:
1. Phase monitoring relay to be Siemens 3U4512-1AR20 or equal and factory installed
- H. Breaker Disconnects as Indicated on Project Drawings and Manufacturer Submittal Drawings:
1. Must be UL 489 Listed Breaker
 2. Breakers shall be removable for service and maintenance

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine elements and surfaces to receive Generator Docking Station for compliance with installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected

3.2 INSTALLATION

- A. Surface, Flush or Base Mounted: Determined by Application
1. Install anchor bolts to elevations required for proper attachment to Generator Docking Station.

3.3 IDENTIFICATION

- A. Comply with requirements in Division 26 Section "Identification for Electrical Systems."
- B. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
- C. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.4 FIELD QUALITY CONTROL

- A. Third Party Tests and Inspections to include the following:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
- B. Prepare test and inspection reports, including a certified report that identifies Generator Docking Station and that describes scanning results. Include notation

END OF SECTION

SECTION 262726

WIRING DEVICES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 1. Receptacles, receptacles with integral GFCI, and associated device plates.
 2. Hospital-grade receptacles.
 3. Tamper-proof receptacles.
 4. Snap switches and wall-box dimmers.
 5. Solid-state fan speed controls.
 6. Wall-box motion sensors.

1.3 DEFINITIONS

- A. EMI: Electromagnetic interference.
- B. GFCI: Ground-fault circuit interrupter.
- C. PVC: Polyvinyl chloride.
- D. RFI: Radio-frequency interference.
- E. TVSS: Transient voltage surge suppressor.
- F. UTP: Unshielded twisted pair.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
 1. Receptacles, switches, plates, floor outlets, poke through assemblies, service poles and multioutlet assemblies.
- B. Samples: One for each type of device and wall plate specified, in each color specified.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of wiring device through one source from a single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with NFPA 70 latest edition or edition enforced by state or local code authority.
- D. Comply with NFPA 99 latest edition or edition enforced by state or local code authority.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Receptacles: Duplex 125 V, 20 A:
 - a. Hubbell - HBL 5362.
 - b. Leviton Mfg. Company Inc.-5362.
 - c. Pass & Seymour-CRB5362.
 - d. Pass & Seymour -PT5362A (Plug Tail Device).
 2. Receptacles: Duplex: Hospital Grade 125 V, 20 A:
 - a. Hubbell - HBL 8300.
 - b. Leviton Mfg. Company Inc.-8300
 - c. Pass & Seymour-PS8300.
 - d. Pass & Seymour -PT8300.
 3. Receptacles: Duplex: Hospital Grade Tamper Resistant 125 V, 20 A:
 - a. Hubbell - HBL8300SG
 - b. Leviton - 8300-SG.
 - c. Pass & Seymour - TR63-H
 4. Receptacles: Duplex: Hospital Grade Isolated Ground 125 V, 20 A:
 - a. Hubbell - IG8300.
 - b. Leviton - 8300-IG.
 - c. Pass & Seymour - IG8300.
 5. GFI Receptacles: Weather Resistant 125 V, 20 A:
 - a. Hubbell Incorporated- BR20WR
 - b. Leviton Mfg. Company Inc.-WBR20
 - c. Pass & Seymour- WR5362.
 6. GFI Receptacles: Weather Resistant and Tamper Resistant 125 V, 20 A:
 - a. Hubbell - BR2WRTR.
 - b. Leviton Mfg. Company Inc.-TWR20
 - c. Pass & Seymour- WR20TR.
 7. Receptacles: Tamper Resistant 125 V, 20 A:
 - a. Hubbell - BR20TR.
 - b. Leviton Mfg. Company Inc.-TWR20
 - c. Pass & Seymour- TR5362.
 8. Switches-Single Pole:
 - a. Hubbell- HBL 1221.
 - b. Pass & Seymour - PS20AC1.
 - c. Leviton Mfg. Company, Inc.- 1221-1
 9. Switches-Three Pole:
 - a. Hubbell- HBL1223
 - b. Leviton Mfg. Company, Inc.-1223-2.
 - c. Pass & Seymour-PS20AC3.
 10. Switches – Occupancy Sensor Wall Type:
 - a. Hubbell - LH-MT
 - b. Leviton - OD15-ID
 - c. Sensor Switch - WSD-PD
 - d. Watt Stopper - WA-200
 11. Switches – Key Operated / Security Switches:
 - a. Hubbell - HBL1221RKL.
 - b. Leviton - 1221-2KL
 - c. Pass & Seymour - PS20AC1-KL.
 12. Dimmer Switches Line Voltage:
 - a. Lutron Nova T
 - b. Pass & Seymour CD2000

* Dimmer must be compatible with Ballast or LED Driver.
 13. Dimmer Switches 0-10V:
 - a. Synergy ISD
 - b. Cooper SF10P

* Dimmer must be compatible with Ballast or LED Driver.

2.2 RECEPTACLES

- A. Straight-Blade-Type Receptacles: Comply with UL 498, 20 amp.
- B. Straight-Blade and Locking Receptacles: Heavy-Duty grade 20 amp.
- C. GFCI Receptacles: Straight blade, feed-through type, Heavy-Duty grade, with integral NEMA WD 6, Configuration 5-20R duplex receptacle; complying with UL 498 and UL 943. Design units for installation in a 2-3/4-inch- (70-mm-) deep outlet box without an adapter.
- D. Hospital grade and tamper resistant in all patient and pediatric.
- E. Tamper resistant in all public areas.

2.3 CORD AND PLUG SETS

- A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.
 - 1. Cord: Rubber-insulated, stranded-copper conductors, with Type SOW-A jacket; with green-insulated grounding conductor and equipment-rating ampacity plus a minimum of 30 percent.
 - 2. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

2.4 SWITCHES

- A. Single- and Double-Pole Switches: Comply with UL 20, 20 amp.
- B. Snap Switches: Heavy-Duty grade, quiet type 20 amp, 120/277 volt.
- C. Live Voltage Dimmer: 120V, 2000 watt, slide to-off. Dimmer must be compatible with ballast or driver.
- D. 0-10V Dimmer: 120/277VAC, capable of three way, max wattage 1200 w 120VAC, 150000 277 VAC, Dimmer must be compatible with ballast or driver. 100% to 1% continuous.

2.5 WALL PLATES

- A. Single and combination types to match corresponding wiring devices.
 - 1. Plate-Securing Screws: Metal with head color to match plate finish.
 - 2. Material for Finished Spaces: As selected by Architect.
 - 3. Material for Unfinished Spaces: Galvanized steel.
 - 4. Material for Wet Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations."
- B. Wet-Location, Weatherproof Cover Plates:
 - 1. NEMA 250, complying with type 3R weather-resistant while-in-use metal or impact-resistant thermoplastic with lockable cover; non-removable gasket between the mounting plate/base and cover; stainless steel hinges and mounting hardware

2.6 SPECIAL CONFIGURATION & TWIST-LOCKING RECEPTACLES

- A. General: NEMA and Non-NEMA configurations as indicated on Drawings.
 - 1. Comply with NEMA WD 1, NEMA WD 6; and UL 498.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hubbell
 - b. Leviton
 - c. Pass & Seymour

2.7 MULTIOUTLET ASSEMBLIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Hubbell Incorporated; Wiring Device-Kellems.
 2. Wiremold Company
- B. Components of Assemblies: Products from a single manufacturer designed for use as a complete, matching assembly of raceways and receptacles. Power receptacles meeting the requirements for receptacles listed in this section above, unless otherwise indicated.
- C. Raceway Material: As indicated on Drawings.
- D. Finish: As selected by Architect
- E. Wire: No. 12 AWG, unless otherwise noted.
- F. Power Receptacle: Devices as indicated on Drawings
- G. Voice and Data Communication Outlet: Devices as Indicated on Drawings.

2.8 FINISHES

- A. Color:
 1. Wiring Devices Connected to Normal Power System: As selected by Architect, unless otherwise indicated or required by NFPA 70.2.
 2. Wiring Devices Connected to Emergency Power System: Red.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install devices and assemblies level, plumb, and square with building lines.
- B. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.
- C. Remove wall plates and protect devices and assemblies during painting.
- D. Adjust locations of floor service outlets and service poles to suit arrangement of partitions and furnishings.
- E. Install weather resistant receptacles in damp and wet locations per N.E.C. requirements.
- F. Mounting Heights: Comply with applicable codes and requirements of Authorities Having Jurisdiction. Mount devices as indicated on Drawings, including but not limited to Architectural elevations. Coordinate all above counter receptacles with backsplash to avoid interferences. All dimensions are given to centerline of box above finished floor (AFF), unless otherwise indicated.

- G. Device Plates and Covers:
 - 1. Do not use oversized or extra-deep plates.
 - 2. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.
 - 3. Install weather-proof-while-in-use covers over receptacles in wet, damp and exterior locations.
 - 4. Group adjacent devices under single, multigang wall plates.
- H. Floor Service Outlets, Service Poles and Poke-Thru Device
 - 1. Adjust locations of floor service outlets, service poles, and Poke-Thru devices to suit arrangement of partitions and furnishings. Coordinate revised location with Structural Engineer.

3.2 APPLICATION

- A. Receptacles in Patient Care Areas: Install Hospital Grade devices where device is located within a Patient Care Area as defined by NFPA 70 Article 517 or the Authorities Having Jurisdiction.
- B. GFCI Receptacles: Install in locations as indicated but in no case less than those listed below:
 - 1. Where device is located on the exterior of the building, provide with Wet-Location Weatherproof Cover Plate.
 - 2. Where device is located within kitchen.
 - 3. Where device is located within a garage.
 - 4. Where device is located in an elevator pit.
 - 5. Where device is located within 6 feet (2-m) of a lavatory or sink, except where located on patient headwall.
- C. Tamper-Resistant Receptacles: Install in locations as indicated but in no case less than those listed below:
 - 1. Public Lobbies.
 - 2. Waiting Rooms.
 - 3. Patient Care Areas.

3.3 CONNECTIONS

- A. Ground equipment according to Division 26 Section "Grounding and Bonding."
- B. Connect wiring according to Division 26 Section "Conductors and Cables."
- C. Tighten electrical connectors and terminals according to manufacturer's published torque- tightening values.

3.4 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
 - 1. After installing wiring devices and after electrical circuitry has been energized, test for proper polarity, ground continuity, and compliance with requirements.
 - 2. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.
- B. Remove malfunctioning units, replace with new units, and retest as specified above.

3.5 CLEANING

- A. On completion of wall plate installation, inspect exterior surfaces and perform the following:

1. Remove paint splatters and other spots.
2. Remove all temporary markings and labels.
3. Replace cracked or damaged wall plates.
4. Wipe down all wall plates with approve cleaning agent to remove fingerprints and dust.

END OF SECTION

SECTION 264313

TVSS FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes Transient Voltage Surge Suppression for low-voltage power, control, and communication equipment.

1.2 DEFINITIONS

- A. SVR: Suppressed voltage rating.
- B. TVSS: Transient voltage surge suppressor.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating weights, operating characteristics, furnished specialties, and accessories.
- B. Product Certificates: For transient voltage suppression devices, signed by product manufacturer certifying compliance with the following standards:
 - 1. UL 1283.
 - 2. UL 1449.
 - 3. MIL-STD 220A. Conduct spectrum analysis of each unit based on test procedures between 50kHz and 200kHz indicating the device noise attenuation.
 - 4. ANSI/IEEE C62.41 and ANSI/IEEE C62.45: Provide certified documentation of applicable Location Category Testing in full compliance guidelines.
- C. Shop Drawings: Submit shop drawings to indicate information not fully described by the product data.
 - 1. Include electrical characteristics and ratings for the specified equipment.
 - 2. Include wiring diagrams indicating the internal connections of the specified equipment within its enclosure.
 - 3. Indicate device dimensions, weights, mounting provisions, and connection details.
- D. Warranty: Warranty statement clearly establishing the terms and conditions to the building/facility owner/operator.
- E. Operation and Maintenance Data: For transient voltage suppression devices to include in emergency, operation, and maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain suppression devices and accessories through one source from a single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with IEEE C62.41, "IEEE Guide for Surge Voltages in Low Voltage AC Power Circuits," and test devices according to IEEE C62.45, "IEEE Guide on Surge Testing for Equipment Connected to

Low-Voltage AC Power Circuits."

- D. Comply with NEMA LS 1, "Low Voltage Surge Protection Devices."
- E. Comply with UL 1283, "Electromagnetic Interference Filters," and UL 1449, "Transient Voltage Surge Suppressors."

1.5 COORDINATION

- A. Coordinate location of field-mounted surge suppressors to allow adequate clearances for maintenance.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of surge suppressors that fail in materials or workmanship within ten years from date of Substantial Completion.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Replaceable Protection Modules: One of each size and type installed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. ABB, Electrification Business
 2. Eaton
 3. Siemens Industry, Inc
 4. Square D

2.2 COMMON REQUIREMENTS FOR SUPPRESSORS

- A. Surge Protection Device Description: Modular design with field-replaceable modules, sine-wave-tracking type with the following features and accessories:
 1. Fuses, rated at 200-kA interrupting capacity.
 2. Fabrication using bolted compression lugs for internal wiring.
 3. Redundant suppression circuits.
 4. Redundant replaceable modules.
 5. Arrangement with wire connections to phase buses, neutral bus, and ground bus.
 6. LED indicator lights for power and protection status.
 7. Audible alarm, with silencing switch, to indicate when protection has failed.
 8. One set of dry contacts rated at 5 A and 250-V ac, for remote monitoring of protection status. Coordinate with building power monitoring and control system.
 9. Surge-event operations counter: Six-digit transient counter set to total all transient surges that deviate from the fundamental sine wave by more than 125V.
 10. Normal Audible Noise less than 0dB.
 11. EMI/RFI Noise attenuation: Exceeding 55dB at 100kHz, using 50 ohm insertion loss test.
 12. Magnetic Fields: No appreciable magnetic fields shall be generated. The device shall be capable of use directly in computer rooms in any location without danger to data

storage systems or devices.
13. Leakage Current less than 1mA.

- B. Integral Disconnect Switch (If Required, Refer to “Installation of Surge Protection Devices”)
1. The device shall have an optional NEMA compliant safety interlocked integral disconnect switch with an externally mounted metal manual operator.
 2. The switch shall disconnect all ungrounded circuit conductors from the distribution system to enable testing and maintenance without interruption to the facility’s distribution system.
 3. The switch shall be rated for 600Vac.
 4. The SPD device shall be tested to UL1449 3rd Edition listed with the integral disconnect switch and the UL1449 VPR ratings shall be provided.
 5. The integral disconnect switch shall be capable of withstanding, without failure, the published maximum surge current magnitude without failure or damage to the switch.
 6. The line side of the integral disconnect shall be blocked off so that when the SPD is opened there is no direct access to the voltage present on the line side of the disconnect.

2.3 SERVICE ENTRANCE SUPPRESSORS (CAT C)

- A. Service Entrance Suppressors to meet “Common Requirements for Suppressors” listed above, unless otherwise indicated.
- B. Maximum Category C combination wave clamping voltage shall not exceed the following:
1. 600V, line to neutral and line to ground on 120/208 V systems.
 2. 1000V, line to neutral and line to ground on 277/480 V systems
- C. Withstand Capabilities: 3000 Category C surges with less than 5 percent change in clamping voltage.
- D. Peak Single-Impulse Surge Current Rating:
1. 320/160 kA per phase/mode.
- E. Connection Means: Permanently wired.
- F. Protection modes and UL 1449 SVR for grounded wye circuits with voltages of 480Y/277, 3- phase, 4-wire circuits shall be as follows:
1. For Non-Fused Devices:
 - a. Line to Neutral: 800 V for 480Y/277.
 - b. Line to Ground: 800 V for 480Y/277.
 - c. Neutral to Ground: 800 V for 480Y/277.
 2. For Fused Devices:
 - a. Line to Neutral: 1000 V for 480Y/277.
 - b. Line to Ground: 1000 V for 480Y/277.
 - c. Neutral to Ground: 1000 V for 480Y/277.

2.4 DISTRIBUTION PANELBOARD SUPPRESSORS (CAT B)

- A. Distribution Panelboard Suppressors to meet “Common Requirements for Suppressors” listed above, unless otherwise indicated.
- B. Maximum Category B combination wave clamping voltage shall not exceed the following:

1. 600V, line to neutral and line to ground on 120/208 V systems.
 2. 1000V, line to neutral and line to ground on 277/480 V systems
- C. Withstand Capabilities: 3000 Category B surges with less than 5 percent change in clamping voltage.
- D. Peak Single-Impulse Surge Current Rating:
1. 240/120 kA per phase/mode.
- E. Protection modes and UL 1449 SVR for grounded wye circuits with voltages of 480Y/277, 3- phase, 4-wire circuits shall be as follows:
1. For Non-Fused Devices:
 - a. Line to Neutral: 800 V for 480Y/277.
 - b. Line to Ground: 800 V for 480Y/277.
 - c. Neutral to Ground: 800 V for 480Y/277.
 2. For Fused Devices:
 - a. Line to Neutral: 1000 V for 480Y/277.
 - b. Line to Ground: 1000 V for 480Y/277.
 - c. Neutral to Ground: 1000 V for 480Y/277.

2.5 LIGHTING AND APPLIANCE PANELBOARD SUPPRESSORS (CAT A)

- A. Lighting and Appliance Panelboard Suppressors to meet “Common Requirements for Suppressors” listed above, unless otherwise indicated.
- B. Maximum Category B combination wave clamping voltage shall not exceed the following:
1. 600V, line to neutral and line to ground on 120/208 V systems.
 2. 1000V, line to neutral and line to ground on 277/480 V systems
- C. Withstand Capabilities: 3000 Category B surges with less than 5 percent change in clamping voltage.
- D. Peak Single-Impulse Surge Current Rating:
1. 80/40 kA per phase/mode.
- E. Protection modes and UL 1449 SVR for grounded wye circuits with voltages of 480Y/277 or 208Y/120, 3-phase, 4-wire circuits shall be as follows:
1. For Non-Fused Devices:
 - a. Line to Neutral: 800 V for 480Y/277 and 400 V for 208Y/120.
 - b. Line to Ground: 800 V for 480Y/277 and 400 V for 208Y/120.
 - c. Neutral to Ground: 800 V for 480Y/277 and 400 V for 208Y/120.

2.6 ENCLOSURES

- A. NEMA 250, with type matching the enclosure of panel or device being protected.

PART 3 EXECUTION

3.1 INSTALLATION OF SURGE PROTECTION DEVICES

- A. Install devices at service entrance on load side, with ground lead bonded to service entrance ground.
- B. Install devices for panelboard and auxiliary panels with conductors or buses between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

1. Provide multipole, 60-A frame circuit breaker as a dedicated disconnect for suppressor, unless otherwise indicated. Comply with manufacturer's written recommendation for conductor and trip rating of circuit-breaker for connecting TVSS devices to distribution system. Match circuit-breaker size to conductor size.
2. Where the panel on plan does not indicate a dedicated breaker for SPD. An integral disconnect shall be provided as described in "Common Requirements For Suppressors"

3.2 FIELD QUALITY CONTROL

- A. Prepare for acceptance tests as follows:
 1. Test insulation resistance for each component, connecting supply, feeder, and control circuit.
 2. Test continuity of each circuit.
- B. Testing Agency: Engage a qualified independent testing and inspecting agency as defined in Division 26 Section "Common Work Results for Electrical" to perform the following field tests and inspections and prepare certified test reports:
 1. After installing surge protection devices, but before electrical circuitry has been energized, test for compliance with requirements.
 2. Complete startup checks according to manufacturer's written instructions.
 3. Perform each visual and mechanical inspection and electrical test stated in NETA ATS 7.19.1, "Surge Arresters, Low-Voltage Surge Protection Devices" Section. Certify compliance with test parameters.

3.3 CLEANING

- A. Clean components according to manufacturer's written instructions.
- B. Prior to installation of front trim and cover plates inspect interior surfaces and perform the following:
 1. Remove paint splatters and other spots.

END OF SECTION

SECTION 265000

LIGHTING

PART 1 GENERAL

1.1 LIGHTING SCHEDULE

- A. The Contractor shall install lighting fixtures and accessories as shown on the drawings and/or described herein. The Contractor shall also install lamps for all fixtures.

PART 2 PRODUCTS

2.1 LED LIGHTING

- A. Lighting fixtures with LED light sources shall meet the following fixture and light source requirements:
1. LED Color Temperature – Per Drawings
 2. CRI > 80
 3. Line Voltage – Universal Voltage 120-277 volts
 4. Governmental Standards – LM79 and LM80 Compliant
 5. Expected Lamp Life – LED Life Rating ($L_{70} B_{10}$) to be 60,000 hours to 100,000 hours; Defined as time of operation (in hours) to 30% lumen depreciation (i.e. 70% lumen maintenance), derived from Luminaire in-situ temperature measurement testing (i.e. LED chip package temperature (T_s) measurement obtained with the LED chip package operating in given luminaire and in a given stabilized ambient environment) under UL1598 environments and directly correlated to LED package manufacturers IESNA LM-80-08 data. Predicted ($L_{70} B_{10}$) Limits (@ 25°C luminaire ambient operating environment): Greater than 60,000 hours @ 350mA Drive Current
 6. Driver – Components must be fully encased in potting material for moisture resistance, and must comply with IEC and FCC standards
 7. Surge Protection – Surge protection must be provided including separate surge protection built into electronic driver
 8. Mechanical – Luminaire LED system components to be low copper aluminum, with high performance heat sink(s) designed specifically for LED luminaires. No active cooling features (Fans, etc.). Luminaire configuration must allow for modular upgradability and/or field repair of all electrical components (i.e. LED modules, Driver(s), etc.). Drivers and vertical light bars must be all mounted to a twist-lock tool-less assembly for ease of installation and trouble-shooting.

2.2 LIGHTING ACCESSORIES

- A. All lighting shall be equipped with the appropriate housing for the ceiling type shown on the architectural reflected ceiling plan.
1. GYP Ceilings –
 - a. 1'X4' 2'X2' & 2'X4' Troffers: Provide flange kit or surface mount kit. If not explicitly indicated on plan contractor shall price based on the more costly product and submit an RFI to Engineer prior to purchase.
 - b. Downlights: Provide recessed housing and appropriate flange kit.
 - c. Strip lighting: Provide surface mount kit. In areas with ceiling heights greater than 10' contractor shall provide chain suspension hardware.
 - d. Architectural linear fixtures: Where indicated as recessed contractor shall provide flange kit or mud-in kit as required. If not explicitly indicated on plan contractor shall price based on the more costly product and submit an RFI to Engineer prior to purchase.
 2. Grid Ceilings – Provide appropriate mounting hardware to recess fixtures into grid.

- B. Fire ratings: Lighting in fire rated ceiling shall be equipped with fire padding, caulking, and/or housings as required to maintain fire ratings. Contractor shall refer to architectural plans for all fire ratings prior to bid.
- C. Emergency battery backup and inverters:
 - 1. Where remote battery backup is utilized contractor shall coordinate all remote test switch locations with owner/architect prior to rough in. They shall not be located in ceiling adjacent to fixture.
 - 2. Where integral battery backup is utilized the fixture shall include self-diagnostics. This shall not be required if specified fixture does not include a self-diagnostic option.
 - 3. Where an inverter is utilized contractor shall provide UL924 transfer devices in the quantity required to accomplish control as shown on plans. Where inverter fixture utilized line voltage dimming contractor shall notify engineer immediately prior to bid.

2.3 OCCUPANCY SENSORS

- A. Sensor shall be a self-contained dual voltage ceiling mounted device capable of directly switching loads upon detection of human activity. Sensor must be circular, and mount to either a single gang enclosure, or surface mount to a round pancake box.
- B. Sensor must be rated for 120 through 277 VAC and be capable of switching zero to 1200 watts of electronic ballast loads. Sensors must be capable of parallel wiring for multi-sensor applications.
- C. Sensor time delay shall be factory set for typical applications, and field adjustable from 30 seconds to 20 minutes. Sensor must provide a green LED motion indicator. Red LED denoting life safety shall not be permitted.
- D. PIR sensing must utilize a high density Fresnel domed lens, providing a circular view pattern of at least 360 degrees by 56 degrees.
- E. Passive Dual Technology (PDT) sensing must incorporate PIR with Microphonics, which utilizes a passive microphone with automatic gain control (AGC) to sense both occupants moving and sounds. The PIR must be used to initiate an on condition, once on the PIR or Microphonics shall keep the load on. After the time delay expires and the load goes off, the Microphonics shall remain active up to 10 seconds as a back-up grace period.
- F. Wall box mounted occupancy sensors shall mount in a standard utility box. Sensor shall have self-contained relay (no power pack required), utilize PIR and microphonics detection, and include auto sensitivity adjustment. Wall box sensor shall be intrinsically grounded and include ON/OFF switch and adjustable time delay.
- G. Occupancy Sensor:
 - 1. Ceiling mount for offices and restrooms – Lutron #LOS-CUS-1000-WH / PP-DV; Wattstopper UT-305-2/BZ-50; Sensor Switch CM PDT9
 - 2. Wall mount for offices, storage rooms, etc. – Lutron #MS+OPS6M-DV-color; Wattstopper WD-170-FINISH; Sensor Switch WSX
 - 3. Ceiling mount in large rooms – Lutron #LOS-CDT-2000WH, with #PP-DV universal power pack; Wattstopper DT-205 / BZ-50; Sensor Switch CM PDT10 with PP16
 - 4. Wall/ceiling mount at end of corridors – Lutron #LOS-WIR-WH / PP-DV 1600'ft coverage; Wattstopper CX-105 / BZ-50; Sensor Switch WV16 with PP16
 - 5. Wall/ceiling mount at center of corridors – Watt Stopper #CX-100-3 series, with #BZ-50 universal power pack; Sensor Switch WV16 with PP16
 - 6. Room controllers – Wattstopper #LMRC-101; nLight #nPP 16
- H. Line Voltage Lighting Contactor:
 - 1. Shall be NEMA-3R where located outdoors and NEMA-1 where located indoor

2. Shall be provided with number of poles required per drawings plus an additional 2 poles or 20% whichever is greater.
3. Shall have integral HOA switch to allow for manual operation of lighting as well as automatic control via photocell.
4. Automatic control is by external photocell contractor shall provide compatible photocell and provide all interconnections required between photocell and contactor.

2.3 FIXTURES

- A. Fixtures as described in the Fixture Schedule on the drawings shall be furnished by the Contractor and shall be properly installed.
- B. Where fixtures are specified with emergency remote test switches contractor shall coordinate location of remote test switch with Owner/Architect prior to installation.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Unless otherwise specified, lighting fixtures shall be permanently installed and connected to the wiring system.
- B. The Contractor shall support each fixture, independently from the building structure. Ceiling framing members shall not be used to support fixtures except in specified areas where ceiling supports for this purpose have been specified elsewhere in these specifications. Each fixture shall have at least two fixture supports.
- C. Flexible conduit used for fixture whips shall be at least twelve (12) inches, but not more than 48 inches long.

3.2 CEILING COMPATIBILITY

- A. Catalog numbers shown on the drawings or descriptions of lighting fixtures contained herein may indicate fixture compatibility with certain types of ceiling construction. Contractor shall determine exact type of ceiling actually to be furnished in each area and shall obtain fixtures to suit, deviation from specified catalogue numbers or descriptions only where necessary and only to the extent necessary to insure fixture/ceiling compatibility.

3.3 LIGHT LEAKS

- A. The Contractor shall, at the end of this project, adjust all recessed lighting fixtures so that there will be no light leaks between the fixture trim and the ceiling. Contractor shall also adjust recessed fluorescent fixtures to eliminate any light leaks between fixture trim and ceiling grid member.

3.4 LAMPS

- A. The Contractor shall install lamps in all fixtures and shall obtain replacement lamps should any not properly operate or become damaged during construction.

3.5 EXIT FIXTURES

- A. Exit fixtures shall be installed according to Life Safety Code requirements, with face(s) plainly visible and directional arrows indicating the proper direction of egress.

END OF SECTION

SECTION 270000

STRUCTURED CABLING SYSTEM

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 PURPOSE

- A. This document defines the products and the execution requirements required to furnish and install a complete distribution system utilizing a structured cabling system.
- B. All cables and related terminations, support and grounding hardware shall be furnished, installed, tested, and documented by the structured cabling contractor as detailed in this document.
- C. The distribution system shall be all inclusive and represent a complete installation at the sites shown on the attached drawings and in the attached specifications. The Vendor shall be responsible for all parts, labor, and all other associated apparatus necessary to completely install, test and turnover for acceptance to the Customer the cabling system detailed herein.
- D. Product specifications and general design considerations are provided in this document. Quantities of telecommunication outlets, typical installation details, cable routing and outlet types will be provided as an attachment to this document. The successful vendor shall meet or exceed all requirements for the cable system described in this document.
- E. Refer to contract drawings for additional requirements to include color coding of faceplates, jacks and cables, labeling, installation, etc.

1.3 RELATED REQUIREMENTS

- A. Drawings and general provision of Contract, including General and Supplementary Conditions, Division 1 Specification, and Electrical sections apply to work in this section.
- B. Install raceways for auxiliary systems.
- C. Interior conduit EMT, minimum 1" unless noted otherwise.
- D. Conduit to extend from wall and floor outlets to above accessible ceiling and terminate with a bushing.
- E. All conduits indicated as spare shall have nylon pullcord.

1.4 REFERENCE STANDARDS

- A. ANSI/TIA/EIA-568B.1-Commercial building Telecommunications Cabling Standard, Part 1: General Requirements
- B. .ANSI/TIA/EIA-568-B.2-Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components.
- C. ANSI/TIA/EIA-568-B.3- Optical Fiber Cabling Components Standard.

- D. ANSI/TIA/EIA-569B-Commercial Building Standard for Telecommunications Pathways and spaces.
- E. ANSI/TIA/EIA-606(A)-The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
- F. ANSI-J-STD-607(A)- Commercial Building Grounding and Bonding Requirements for Telecommunications.
- G. TIA-526-7-OFSTP-7 Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant.
- H. TIA-526-14A-OFSTP-14 Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant.
- I. ANSI/TIA/EIA-758(A)- Customer-Owned Outside Plant Telecommunications Cabling Standard.
- J. TIA TSB-140 Additional Guidelines for Field Testing Length, Loss and Polarity of Optical
- K. ANSI/TIA/EIA 568 B-2.10- 10GIG ETHERNET
- L. Install Cabling in accordance with the most recent edition of BICSI publications.
 - 1. BICSI-Telecommunications Distribution Methods Manual.
 - 2. BICSI-Installation Transport Systems information Manual.
 - 3. BICSI-Network Design Reference Design Manual.
 - 4. BICSI-Outside Plant Design Reference Manual.
- M. Federal, State and local codes, rules, regulations, and ordinances governing the work, are fully part of the specifications as if herein repeated or hereto attached.
- N. If the contractor should note items in the drawings or the specifications, construction of which would be a code violation, promptly call them to the attention of the owner's representative in writing.
- O. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.
- P. All material shall be listed by UL or other National Independent testing standard shall apply.
- Q. If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All construction documents listed are believed to be the most current. The Vendor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.
- R. This document does not replace any code, either partially or wholly. The Contractor must be aware of local codes that may impact this project.

1.5 APPROVED CONTRACTOR

- A. The Contractor shall have total responsibility for the coordination and installation of the work shown and described in the Drawings and Specifications. The Contractor shall be a company specializing in the design, fabrication and installation of integrated telecommunication systems.
- B. The installation of all cable, equipment, terminations, & associated services shall be performed by a company that is a Manufacturer's Certified Structured Cabling System Installer in good standing with a minimum of three (3) years of experience on similar systems.

- C. A copy of certification documents must be submitted with the product submittals for quote to be valid. The telecommunications contractor is responsible for workmanship and installation practices in accordance with the manufacturer's written policies.
- D. The cable or connectivity manufacturer will extend a 25-year manufacturer's warranty for all products installed in this project to the end user once the telecommunications contractor fulfills all requirements under these specifications.
- E. The contractor must have an office with qualified service and installation personnel within 100 miles of the project site.
- F. The Telecommunications cabling contractor must provide a reference list with contact names and phone numbers for three (3) projects of similar scope.
- G. The contractor shall employ a full-time RCDD to perform the role of Project Manager. RCDD shall be available for consultation and to attend project meetings. The contractor shall not subcontract a third party RCDD.
- H. A BICSI certified installer shall be employed by the contractor and be on site as the installation manager.
- I. The owner reserves the right to require the Vendor to remove from the project any such employee the Owner deems to be incompetent, careless or insubordinate.
- J. All clean up activity related to work performed, will be the responsibility of the Contractor and must be completed daily before leaving he site.

1.6 COORDINATION WITH OTHER TRADES

- A. The Contractor shall coordinate telecommunications work with that of other Sections as required ensuring that the entire telecommunications work will be carried out in an orderly, complete and coordinated fashion.

1.7 SUBMITTALS

- A. Submit to the engineer/designer shop drawings, product data (including cut sheets and catalog information), and samples required by the contract documents. Submit shop drawings, product data, and samples with such promptness and in such sequence as to cause no delay in the work or in the activities of other contractors. The engineer/designer will indicate approval of shop drawings, product data, and samples submitted to the engineer by stamping submittals "APPROVED" with a stamp. Submitted shop drawings shall be initialed or signed by the contractor's legitimate firm name.
 - 1. By submitting shop drawings, product data, and samples, the Vendor represents that he/she carefully reviewed and verified materials, quantities, field measurements, and field construction criteria related thereto. It also represents that the Vendor has checked, coordinated, and verified that information contained within shop drawings, product data, and samples conform to the requirements of the work and of the contract documents.
 - 2. The engineer's/designer's approval of shop drawings, product data, and samples submitted by the Vendor shall not relieve the Vendor of responsibility for deviations from requirements of the contract documents, unless the Vendor has specifically informed the engineer/designer in writing of such deviation at time of submittal, and the engineer/designer has given written approval of the specific deviation. The vendor shall continue to be responsible for deviations from requirements of the contract documents not specifically noted by the Vendor in writing, and specifically approved by the engineer in writing.
 - 3. The engineer's/designer's approval of shop drawings, product data, and samples shall

not relieve the Vendor of responsibility for errors or omissions in such shop drawings, product data, and samples.

4. Storage and handling requirements and recommendations.
 5. Installation method.
-
- B. Shop Drawings: Show compliance with requirements on isometric schematic diagram of network layout, showing cable routings, telecommunication closets, rack and enclosure layouts and locations, service entrance, and grounding, prepared and approved by BICSI Registered Communications Distribution Designer (RCDD).
 - C. Submit proof from manufacturer that the contractor is in good standing with the manufacturer's warranty program.
 - D. Submit letter from manufacturer stating that the manufacturer will provide twenty-five (25) year warranty in accordance with the requirements stated in this document.
 - E. Submit copy of RCDD certification.
 - F. Upon request by the engineer/designer, furnish a list of references with specific information regarding type of project and involvement in providing of equipment and systems.
 - G. Submit references as required.
 - H. At completion of project, Contractor shall submit the following:
 1. Horizontal certification test results printed and saved to USB drive.
 2. Backbone certification test results printed and saved to USB drive.
 3. Project Record Documents: Prepared and approved by BICSI Registered Communications Distribution Designer (RCDD). The record documents shall be bound and consist of the following:
 - a. Product cut sheets for all products supplied.
 - b. Test reports for horizontal cabling.
 - c. Test reports for backbone cabling.
 - d. Manufactures warranties.
 - e. "D-Size" As built drawings.
 - I. As built drawings should accurately record location of service entrance conduit, termination backboards, outlets boxes, cable raceways, cable trays, pull boxes, and equipment racks electronically using AutoCAD 2000 or later version and on minimum "D" size reproducible paper prints.
 - J. The contractor shall prepare an 18" x 24" as-built serving zone drawing for each Telecommunication Room. The drawing shall be laminated, framed and secured to the wall in the Telecom Room.
 - K. Work shall not proceed without the Engineer's approval of the submitted items. The Contractor shall receive approval from the Engineer on all substitutions of material. No substituted materials shall be installed except by written approval from the engineer.

1.8 QUALITY ASSURANCE

- A. Equipment and materials required for installation under these Specifications shall be the current model and new (less than one (1) year from the date of manufacture), unused and without blemish or defect.
- B. Equipment and materials of the type for which are independent standard testing requirements, listings, and labels, shall be listed and labeled by the independent testing laboratory.

- C. Material and equipment shall be new, and conform to grade, quality, and standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout installation.
- D. Product Requirements:
 - 1. The product shall be manufactured by an ISO 9001-2000 Certified Facility.
 - 2. Product shall be free from defects in material and workmanship.
 - 3. The manufacturer must have a field representative who holds an RCDD who will perform quality control inspections monthly, during the life of the project.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Products must be stored according to manufacturers' recommendations.
- B. Keep stored products clean and dry.
- C. If the Telecommunications Contractor wishes to have a trailer on site for storage of materials, arrangements shall be made with the owner.

1.10 DRAWINGS

- A. It shall be understood that the electrical details and drawings provided with the specification package are diagrammatic. They are included to show the intent of the specifications and to aid the Telecommunications Contractor in bidding for the job. The Telecommunications Contractor shall make allowance in bid proposal to cover whatever work is required to comply with the intent of the plans and specifications.
- B. The Telecommunications Contractor shall verify all dimensions at the site and be responsible for their accuracy.
- C. Prior to submitting the bid, the telecommunications Contractor shall call the attention of the Engineer to any materials or apparatus the Telecommunication Contractor believes to be inadequate and to any necessary items of work omitted.

1.11 WARRANTY

- A. See Section "Closeout Submittals" for additional warranty requirements.
- B. The Contractor shall provide a manufactures warranty to guarantee end-to-end high performance cabling systems that meet application requirements. The guarantee shall include all Horizontal drops and Backbone fiber optic cable and connectivity components and have one point of contact for all cabling system issues. The system shall be warranted for a period of 25 years.
- C. Materials and workmanship hereinafter specified shall be fully guaranteed by the vendor for a (1) one year period after Date of Substantial Completion against any defects. Defects which may occur as the result of faulty materials or workmanship within one year after installation and acceptance by The Customer shall be corrected by the Vendor at no additional cost to the Customer. The Vendor shall promptly, at no cost to The Customer, correct re-perform (including modifications or additions as necessary) any nonconforming or defective work within one year after completion of the project of which the work is part.

1.12 SEPARATION FROM EMI SOURCES

- A. Comply with BICSI TDMM and ANSI/TIA/EIA-569-B recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.

- B. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
 - 1. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.
 - 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
 - 3. Electrical Equipment Rating More than 5 kVA: A minimum of 12 inches.

- C. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows.
 - 1. Electrical Equipment Rating Less than 2 kVA: A minimum of 2 ½ inches.
 - 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
 - 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.

- D. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - 1. Electrical Equipment Rating Less than 2 kVA: No requirement.
 - 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
 - 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.

- E. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.

- F. Separation between Communications Cables and Fluorescent Fixtures: A minimum of 12 inches.

PART 2 PRODUCTS

2.1 EQUIVALENT PRODUCTS

- A. Due to the nature and type of communications all products, including but not limited to racks, patch panels, jacks, faceplates, patch cords, J-hooks shall be manufactured by Hubbell, Siemon, or Panduit.

- B. Provide products of manufacturers as named in individual articles.

- C. Where no manufacturer is specified, provide products of manufacturers in compliance with requirements.

- D. Where equipment is identified by manufacturer and catalog number, it shall be a base of requirements for quality and performance. Where manufacturers for equipment are identified by name, the Contractor may submit for approval, similar equipment of other manufactures as substitution. The Engineer's decision as to whether the submitted equipment is acceptable shall be final and binding.

- E. The request for substitutions must be received (10) ten days prior to bid opening by Engineer in writing, listing all physical and technical differences between product specified and product request for substitution. Product samples of each item must accompany written request.

- F. Accepted substitutions will be approved by means of addendum.

2.2 CATEGORY 6 HORIZONTAL DISTRIBUTION CABLE

- A. All Horizontal station cables shall terminate on modular patch panels in their respective Telecommunication Room or Equipment Room as specified on the drawings.

- B. All cable, workstation jack modules and patch panel jack modules shall be the same color as designated on prints. If colors are not designated Coordinate color with Engineer. See

details.

C. Unshielded Twisted-Pair Cabling:

1. Cable construction shall be 23 AWG with four twisted pairs of insulated solid bare annealed copper conductors with separator.
2. Outer jacket shall meet NEC requirements and have a Nominal Cable diameter not to exceed .200 for CMP (in)
3. Cable shall have a minimum bend radius of 1.0 (in).
4. Contain "Crossweb" Filler
5. Must have positive PSACR beyond 250 MHz.
6. Application assurance warranty.
7. All transmission performance parameters shall be independently verified by UL or ETL third party testing organization.
8. Contractor will use a plenum rated cable jacket unless being installed in slab and below grade.
9. Approved Manufacturer - Category 6 Horizontal Cable:

Manufacturer	CMR	CMP
Hubbell	HC6RRx	HC6RPx
Siemon	9C6R4-E4-(XX)-RBA	9C6P4-E4-(XX)-RBA
Panduit	PUR6504xx-UY	PUP6504xx-UY

D. ANY CABLE LOCATED IN SLAB BELOW GRADE SHALL BE RATED FOR WET LOCATIONS.

1. Approved Manufacturer - Indoor/Outdoor Rated Cable:

Manufacturer	CMP
Hubbell	C6IOSPBK
Siemon	9U6W4-A5-12-R1A
Panduit	PUO6AS04BL-G

2.3 CATEGORY 6A HORIZONTAL DISTRIBUTION CABLE

- A. All Horizontal WAP Cable shall terminate on modular patch panels in their respective Telecommunication Room or Equipment Room as specified on the drawings.
- B. All cable and patch panel jack modules shall be the same color as designated on prints. If colors are not designated Coordinate color with Engineer. See details.
- C. Unshielded Twisted-Pair Cabling:
 1. Cable construction shall be 23 AWG with four twisted pairs of insulated solid bare annealed copper conductors with separator.
 2. Outer jacket shall meet NEC requirements and have a reduced diameter not to exceed .265 for CMP (in)
 3. Cable shall have a minimum bend radius of 1.0 (in).
 4. Contain "Crossweb" filler.
 5. +7dB of Headroom Above Standards to suppress Alien Crosstalk
 6. High Power PoE (4PPoE) Read
 7. All transmission performance parameters shall be independently verified by UL or ETL third party testing organization.
 8. Approved Manufacturer - Category 6A Horizontal Cable:

Manufacturer	CMR	CMP
Hubbell	C6ASRDSY	C6ASPDSY
Siemon	9C6R4-A5-05AR1A	9C6P4-A5-05AR1A
Panduit	PUR6AV04YL-G	PUP6AV04YL-G

2.4 WORK AREA OUTLETS

- A. WAO shall consist of a single gang 2 Port or 4 Port thermoplastic face plate.
- B. Work area outlets shall each be terminated at their designated work area location in the connector types described below.
- C. The same orientation and positioning of jacks and connectors shall be utilized throughout the installation. Prior to installation, the Telecommunications Contractor shall submit the proposed configuration for each outlet assembly, with labeling, for review by the owner.
- D. The wiring scheme for this project shall be T568B unless otherwise directed by the owner.
- E. Category 6 Modular Jack:
 - 1. Third Party Verified Category 6 Component
 - 2. Cobra-Lock Termination Technology
 - 3. Wires Secured Under Constant Compression
 - 4. Easily Re-Terminate
 - 5. 25 IDC Re-termination Cycles
 - 6. Qualified to 150% of 802.3bt PoE Current Level
 - 7. Where color is not indicated coordinate with Engineer prior to installation.
 - 8. Approved Manufacturer - Category 6 Modular Jack (WAO):

Manufacturer	Modular Jack
Hubbell	HJU6xx
Siemon	U6-K0xx
Panduit	CJ688TGxx

- F. Jacks at WAO and patch panels shall be color-coded with appropriate colored jacks or icons as follows:
 - 1. Two port face plates:
 - a. The left jack shall be BLUE, and the right jack RED. Contractor shall be responsible for making sure the color at the patch panel coordinates with jack at WAO.
 - 2. Four port face plates:
 - a. The upper left jack shall be BLUE, the upper right.
 - b. jack shall be RED, the bottom-left jack shall be GREEN, and the bottom right jack shall be GRAY.

2.5 WIRELESS ACCESS POINT OUTLET

- A. WAP outlets shall consist of a minimum of two (2) Category 6A cables be terminated above ceiling using a Cat6A Yellow jack in a 2-port Surface Box or using a Cat6A MPTL assembly. Either option shall leave a 10-foot service loop on the horizontal cable run.
- B. Each WAP location shall be identified with a 1"x 2" black phenolic tag with white lettering affixed to the underside of the ceiling grid. It shall be the contractor's responsibility to verify measurements of the ceiling grid prior to ordering the phenolic tags, so as not to create an overhang by the label.
- C. Each cable shall be identified with a printed wire wrap label.
- D. The wiring pattern for this project shall be T568B unless otherwise directed by the owner.
- E. The wiring pattern of jacks and connectors shall be utilized throughout the installation. Prior to installation, the Telecommunications Contractor shall submit the proposed configuration for each outlet assembly, with labeling, for review by the owner.
- F. Category 6A Modular Jack:

1. Third Party Verified Category 6 Component
2. Cobra-Lock Termination Technology
3. Wires Secured Under Constant Compression
4. Easily Re-Terminate
5. 25 IDC Re-termination Cycles
6. Qualified to 150% of 802.3bt PoE Current Level
7. Where jack color is not indicated coordinate with Engineer prior to installation.
Approved Manufacturer - Category 6A Modular Jack Assembly (WAP):

Manufacturer	Jack	Surface Box
Hubbell	HJU6AY	HSB2W(P)
Siemon	U6A-K05	MX-SMZ2-02
Panduit	CJ688TGYL	CBX2IW-AY

Approved Manufacturer - Category 6A Modular Plug (WAP):

Manufacturer	Modular Plug
Hubbell	SCP6A
Siemon	ZP1-6AS-01S
Panduit	FP6X88MTG

2.6 COPPER PATCH CABLES

- A. Patch Cables shall be factory terminated with modular plugs featuring a tangle-free latch design and clear strain-relief boots to support easy moves, adds and changes. Each patch cord shall be 100% performance tested at the factory to the TIA/EIA Category 6 standard. *Each patch cord shall be made by the same factory as the Cat6 jacks and patch panels used in the project.*
- B. Contractor shall provide one 5ft patch cable for each cable terminated at patch panel. Contractor shall provide one patch cable for each terminated WAO, with half the WAO patch cables being 10ft and remaining half being 15ft. Provide an additional 5% surplus equally divided between 5ft, 10ft & 15ft. Confirm lengths and color with owner prior to ordering and transmittal.
- C. Approved Manufacturer - Patch Cable:

Manufacturer	5ft Cat6	10ft Cat6	15ft Cat6
Hubbell	HCL6x05	HCL6x10	HCL6x15
Siemon	MC6-05-xx-28	MC6-10-xx-28	MC6-15-xx-28
Panduit	UTP28SP5xx	UTP28SP10xx	UTP28SP15xx

Manufacturer	5ft Cat6A	10ft Cat6A	15ft Cat6
Hubbell	HCL6x01	HCL6x07	HCL6Ax01
Siemon	SP6A-05-xx	SP6A-10-xx	SP6A-15-xx
Panduit	UTP28X5xx	UTP28X10xx	UTP28X15xx

2.7 MODULAR PATCH PANELS

- A. All horizontal voice, data and wireless, CCTV & AV cables shall be installed in a modular rack mount patch panel. Each patch panel shall have strain relief bars for each row of 24 ports (a 48-port panel gets 2 relief bars).
- B. Approved Manufacturer - Patch Panel:

Manufacturer	24 Port	48 Port	Strain Relief
Hubbell	HPJ24	HPJ48	CMBR

Siemon	KPNL-F1-24-01S	KPNL-F2-48-01S	KPNL-RWM
Panduit	CPPL24WBLY	CPPL24WBLY	SRB19BLY

2.8 HIGH IMPACT THERMOPLASTIC FACEPLATES WITH LABEL FIELDS

A. Verify color of faceplate with architect and engineer prior to ordering.

B. Approved Manufacturer -Faceplate:

Manufacturer	1-Port	2-Port	4-Port
Hubbell	IFP11W	IFP12W	IFP14W
Siemon	KFP-S-01-02	KFP-S-02-02	KFP-S-04-02
Panduit	CFPL1W	CFPL2W	CFPL4W

2.9 BACKBONE FIBER OPTIC CABLE

A.. Furnish and install a minimum of one (1) 12 strand fiber optic cable from the MDF to each IDF, unless otherwise indicated on backbone Riser diagram.

B. All indoor fiber optic cable shall be tight buffered construction with Interlocked Armored Plenum rated.

C. All outdoor or underground fiber optic cables shall be an indoor/outdoor jacket with tight buffered construction.

D. Approved Manufacturer - Indoor Interlocking Armored Fiber Optic Cable:

Manufacturer	Singlemode (OS2)	Multimode (OM4)
Hubbell	HFCD15012PS	HFCD15012P4
Siemon	9BC5P012G-E205	9BC5P012G-T512
Panduit	FSP912Y	FOPPZ12Y

E. Approved Manufacturer - Indoor/Outdoor Fiber Optic Cable:

Manufacturer	Singlemode (OS2)	Multimode (OM4)
Hubbell	HFCD14012PSBK	HFCD14006P4BK
Siemon	9GD8012G-E201	9GD5012G-T501
Panduit	FSCP912Y	FOCPZ12Y

2.10 FIBER OPTIC RACK MOUNT ENCLOSURE

A. Enclosure shall be mounted in standard 19" rack or cabinet. Shall have front and rear access on all modules via molded-hinged doors. Must have radius control and cable management for fiber patch cords. Shall have multiple cable entry locations. Include fiber optic cable routing kit (grommets, cable ties, saddle clips, strain relief bracket and ID/caution labels for various cable management solutions.

B. Approved Manufacturer - Rack Mount Fiber Optic Enclosure:

Manufacturer	1U	2U	4U
Hubbell	FCR1U3SPT	FCR2U6SPT	FCR4U15SPT
Siemon	LVE-1U-MD-P01A	LVE-2U-MD-P01A	LVE-4U-MD-P01A
Panduit	FCE1U	FCE2U	FCE4U

2.11 FIBER OPTIC ADAPTER PANELS

A. All adapter panels shall be LC form factor and use zirconia ceramic split sleeves. Use blank

adapters in each empty port in each fiber optic enclosure.

- B. Fill unused slots of fiber enclosure with blank panels
- B. Approved Manufacturer - LC Adapter Panel:

Manufacturer	LC 12-Port OS2	LC 12-Port OM4	Blank Panel
Hubbell	FSPNLCDS6AQ	FSPNLCDS6AQ	FSPNB
Siemon	LVA12-LCQ-BC-A	LVA12-LCQ-BC-A	LVA-BLANK-01A
Panduit	FAP6WBUDLCZ	FAP6WAQDLCZ	FAPB

2.12 FIBER OPTIC CONNECTORS

- A. Fiber connectors shall have a LC UPC interface. Connectors may be a mechanical or splice-on type connector.
- B. Approved Manufacturer - Fiber Optic Connectors:

Manufacturer	LC; OS2 Mechanical	LC; OM4 Mechanical	LC; OS2 Splice-On	LC; OM4 Splice-On
Hubbell	FCLC900KSM12	FCLC900K50GM12	FCLCF900SMBP	FCLCF900M50GBP
Siemon	FC1-LB-LCU-9BL	FC1-LB-LC5-9AQ	FC-F-LCU-29BL	FC-F-LC5-29AQ
Panduit	FLCSSCBUY	FLCSMCXAQY	FLCS2/9SOCU9BU	FLCS2/9SOCPXAQ

2.13 FIBER OPTIC PATCH CABLES

- A. Contractor shall provide six (6) duplex fiber patch cords for each 12 strands of fiber installed. Patch cables shall be capable of connecting from fiber patch panel to owner provided equipment.
- B. Fiber patch cables shall be manufactured in the USA.
- C. Approved Manufacturer - Fiber Patch Cables Products:

Manufacturer	OS2; LC/LC; 1M; YL; Plenum	OM4; LC/LC; 1M; AQ; Plenum
Hubbell	DFHPCLCLCS1SM	DFHPCLCLCF1MM
Siemon	FPSLDLD001M	FP4LDLD001M
Panduit	F92RPU1U1ONM001	FZ2RPU1U1ONM001

2.14 Network/EQUIPMENT CABINETS

- A. Secure cabinet per manufactures instructions and install 18" Ladder Rack from top of each rack to wall.
- B. Each ladder rack shall utilize a "waterfall" or cable drop out at each 2-post rack to maintain the bend radius to each vertical cable manager.
- C. Ground each cabinet per ANSI/TIA/EIA-607 Requirements.
- D. Maintain 36" clearance from the front and rear of cabinet and on one side.
- E. Where no dedicated MDF/IDF closet is available or space will not allow for the use of a floor mounted cabinet use a Wall Mount Swing Gate Style Cabinet
- F. Where space is extremely narrow use Hubbell REBOX Part Number: RE4XB or equivalent.

G. Reference riser diagram to determine Cabinet type.

1. Approved Manufacturer - Cabinets:
 - a. Floor Cabinet

Manufacturer	45RU Floor Cabinet
Hubbell	H3S4748
Siemon	V62B-2AB121-45
Panduit	XG84822BS0005

- b. Wall Mount Cabinets

Manufacturer	24"H x 26"D Wall Cabinet	36"H x 26"D Wall Cabinet
Hubbell	HSQ2436	HSQ3626
Siemon	WC2-P101-12	WC2-P101-18
Panduit	PZWMC12W	PZWMC1830W

2.15 CATV HORIZONTAL CABLES

A. Coax Cable shall be Series 6 quad shield plenum rated.

1. Approved Manufacturers – Series 6 Cable:

Manufacturer	Series 6 Quad Shield; Plenum
Essex	78-14C-91
Prysmian	2131758

B. Coax Terminations & Connectors :

1. All coax shall be terminated with compression style connectors. All corresponding strippers and crimp tools shall be used for complete and proper termination.
2. Approved Manufacturers – Series 6 Connectors:

Manufacturer	Series 6 Compression Connectors
Hubbell	FRG625
Siemon	RG6C
Panduit	FSNS6U

2.16 GROUNDING AND BONDING

A. Grounding shall conform to ANSI-J-STD607(A)- Commercial building Grounding and bonding Requirements for Telecommunications, National Electrical Code, ANSI/NECA/BICSI-568 and manufacture's grounding requirements as minimum.

B. Bond and ground equipment racks, housings, messenger cables, and raceways.

C. Connect cabinets, racks, and frames to single-point ground which is connected to building ground system via (minimum #6) green insulated copper grounding conductor.

D. Contractor shall verify actual measurement of the Telecommunication Bonding Backbone (TBB) and size the bonding backbone accordingly.

E. Approved Products:

Manufacturer	Primary Bonding Busbar (PBB)	Secondary Bonding Busbar (SBB)	Compression Lug; 2-Hole	Ladder Tray Bonding Jumper Kit
Hubbell	HBBB14416H	HBBB14212	HGBLxxxx	HGRKTKA9KA5
Burndy	BBB14416H	BBB14212N	BGBLxxxx	BGRKTKA9KA5

- F. Contractor to provide all additional necessary components, including but not limited to C-Taps, H-Taps, RB, RBC, TEBC

2.17 J-HOOKS

- A. The cable support used must maintain complete horizontal and vertical 1" bend radius control.
- B. Do not exceed EIA/TIA standards or manufactures recommendations of 40% fill ratio in each cable support.
- C. All J-Hooks are to be placed no more than 4-5 feet apart.
- D. Approved Products:
 - 1. Hubbell
 - 2. Caddy
 - 3. B-Line

PART 3 EXECUTION

3.1 PRE-INSTALLATION SITE SURVEY

- A. Prior to start of system, meet at the project site with owner's representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the General Contractor will be necessary to plan the crucial schedule completions of the equipment room and telecommunication closet.
- B. Examine areas and conditions under which the system is to be installed. Do not proceed with work until satisfactory conditions have been achieved.

3.2 INSTALLATION GUIDELINES

- A. The work included under this specification, consist of furnishing all labor, equipment, material, and supplies and performing all operations necessary to complete the installation of this structured cabling system in compliance with the specifications and drawings. The Telecommunications contractor will provide and install all of the required material to form a complete system whether specifically addressed in the technical specification or not.
- B. All work performed on this project will be installed in accordance with the current edition of the National Electrical code, the current edition of The National Electrical Safety Code, the current issue of the National Electrical Code, The current edition of ANSI/NECA/BICSI-568- Standard for Installing Commercial Building Telecommunications Cabling, the current edition of the BICSI Telecommunications Distribution Methods Manual, the current edition of the BICSI Cabling Installation Manual, the latest issue of ANSI/TIA/EIA Standards as published Global Engineering Documents as ANSI/TIA/EIA Telecommunications Building Wiring Standards, and all local codes and ordinances. Should conflicts exist with the foregoing, the authority having jurisdiction for enforcement will have responsibility for making interpretation.
- C. If this document and any other documents listed above are in conflict, then the more stringent requirements shall apply. All documents listed are believed to be the most current release of the documents. The Vendor has the responsibility to determine and adhere to the most current release.
- D. This document does not replace any code, either partially or wholly. The Vendor must be aware of local codes that may impact this project. All, local, State and federal codes are to be followed.

- E. All materials shall be UL Listed or listed by other National Independent testing agency and shall be marked as such.
- F. Section Includes: Equipment, materials, labor, and services to provide a complete structured cabling system including, but not limited to:
 - 1. Furnish and install a complete telecommunication wiring infrastructure.
 - 2. Furnish, install, terminate and test all copper and Optical fiber cables.
 - 3. Furnish and install Raceway, boxes, and cable tray.
 - 4. Furnish and install all wall plates, jacks, patch panels, and patch cords as described.
 - 5. Furnish and install all required cabinets and/or racks as required and as indicated.
 - 6. Furnish any other material required to form a complete system.
 - 7. Perform Link testing (100% of horizontal and/or backbone links) and certification of all components. All test must meet or exceed link testing requirements as specified in this document.
 - 8. Furnish test results of all cabling to the owner on disk and paper format, listed by each closet, then by workstation ID.
 - 9. Provide owner test results and documentation. (Testing documentation and as-built drawings).
 - 10. Removal of abandoned cable, if required.

3.3 WORK NOT INCLUDED

- A. Unless otherwise indicated, the Vendor is not responsible for providing data concentrators, hubs, switches, servers, computers, and other active devices such as PBX's.

3.4 INSTALLATION

- A. Install materials and equipment in accordance with applicable standards, codes, requirements, and recommendations of national, state, and local authorities having jurisdiction, and current National Electrical Code and with manufacturer's instructions.
- B. Install in accordance with manufacturer's instructions.
- C. All cable shall conform to the requirements for communications circuits defined by the National Electrical code (Article 800). Cable listed to NEC Article 800-51(a) will be used for "Plenum" installations. Cable listed to NEC Article 800-51(b) shall be installed in vertical runs penetrating more than one floor.
- D. Adhere to manufacturer's specifications for pulling tension, minimum bend radii, and sidewall pressure when installing cables.
 - 1. Where manufacturer does not provide bending radii information, minimum-bending radius shall be 15 times cable diameter. Arrange and mount equipment and materials in a manner acceptable to the engineer and the owner.
- E. Penetrations through floor and fire-rated walls shall utilize intermediate metallic conduit (IMC) or galvanized rigid conduit (GRC) sleeves and shall be fire stopped after installation and testing, utilizing a fire stopping assembly for that application. Contractor may also utilize EZ Path fire rated pathway or equivalent.
- F. Install station cabling to the nearest telecommunications room (TR), unless otherwise noted.
- G. Installation shall conform to the following basic guidelines.
 - Use of approved wire, cable, and wiring devices.
 - Neat and uncluttered wire termination.
- H. Where cable tray is not used, attach cables to permanent structure with suitable

attachments at intervals of 48 to 60 inches. Support cables above removable ceilings.

- I. Follow manufactures recommendations on spacing and number and type of cables installed in j-hooks or cable tray to avoid cable stress.
- J. Separation and physical barriers between communication cabling and power cables must be always maintained.
- K. Install adequate support structure for 10-foot service slack at each TR.
- L. Support riser cables every (3) floors and at top of run with cable grips.
- M. Limit number of four-pair data riser cables per grip to fifty (50).
- N. Install cables in one continuous piece. Splices or taps will not be allowed.
- O. Provide overvoltage protection on both ends of cabling exposed to lightning or accidental contact with power conductors.

3.5 LABELING

- A. Label each outlet with permanent self-adhesive label.
- B. Label each cable within 1" of termination on each end.
- C. Use labels on the face of patch panels. Provide facility assignment records in a protective cover at each telecommunications closet location that is specific to the facilities therein.
- D. Use color-coded labels for each termination field that conforms to ansi/TIA/EIA-606(A) standard color codes for termination blocks.
- E. Labels shall be machine-printed. Handwritten labels shall not be acceptable.
- F. Mark up floor plans showing outlet locations, type, and cable marking of cables. Turn these drawings over to the owner two (2) weeks prior to move in date.
- G. Three (3) sets of as-built drawings shall be delivered to the owner within four (4) weeks of acceptance of project by the owner. A set of as-built drawings shall be provided to the owner in electronic form utilizing CAD software that is acceptable to the owner. The electronic media shall be delivered to the owner within six (6) weeks of acceptance of project by owner.

3.6 TESTING

- A. Testing shall conform to ANSI/TIA/EIA-568-B.1 standard. Testing shall be accomplished using a level IIe or higher field testers.
- B. All testing shall meet or exceed Manufactures recommendation for 25-year warranty program,
- C. Test each pair and shield of each cable for open shorts, grounds, and pair reversal. Correct grounded and reversed pairs.
- D. If copper backbone cable contains more than one (1) percent bad pairs, remove and replace entire cable.
- E. If horizontal cable contains bad conductors or shield, contractor shall remove and replace cable at no additional cost to owner.

- F. Test optical cable with a light source and power meter utilizing procedures as stated in ANSI/TIA/EIA-526-14a: OFSTP-14A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant and ANSI/TIA/EIA-526-7 Measurements of Optical Power Loss of Installed Singlemode Fiber Cable Plant. Measure results shall be plus/minus 1 dB of submitted loss budget calculations. Correct improper splices and replace damaged cables at no charge to the owner.
 - 1. Cables shall be tested at 850 and 1300 nm for multimode optical fiber cables. Cables shall be tested at 1310 and 1550 for singlemode optical fiber.
 - 2. Testing procedures shall utilize "Method B"- one jumper reference.
 - 3. Bi-directional testing of optical fiber is required.
 - 4. Submit printout for each cable tested. The use of handwritten test results will not be acceptable.

3.7 FIELD QUALITY CONTROL

- A. Employ job superintendent or project manager during the course of the installation to provide coordination of work of this specification and of other trades and provide technical information when requested by other trades. This person shall maintain current RCDD (Registered Communication Designer) registration and shall be responsible for quality control during installation, equipment set-up, and testing.
- B. Installation personnel shall meet manufacturer's training and education requirements for implementation of extended warranty program.

END OF SECTION

SECTION 283100

FIRE DETECTION AND ALARM

PART 1 GENERAL

1.1 INCLUDED IN THIS SPECIFICATION

- A. Provide a complete fire alarm system per this project's plans and specifications. The system shall include a state-of-the-art, software-based control panel using addressable and analog type initiating devices and be capable of voice evacuation capabilities.

1.2 RELATED WORK

- A. The Contractor shall coordinate work in this Section with all related trades. Work and/or equipment provided in other Sections and related to the fire alarm system shall include, but not be limited to:
 - 1. Sprinkler waterflow and supervisory switches shall be furnished and installed by the fire protection contractor, but wired and connected by the electrical contractor. Modification of existing sprinkler devices to accommodate monitoring by the new fire alarm system shall be the responsibility of the fire alarm system installing contractor.
 - 2. Duct smoke detectors shall be furnished, wired and connected by the electrical contractor. The HVAC contractor shall furnish necessary duct opening to install the duct smoke detectors.
 - 3. New air handling and smoke exhaust system fan control circuits and status contacts to be furnished by the HVAC control equipment.
 - 4. Elevator recall control circuits to be provided by the elevator control equipment. Modifications to the existing elevator controls to accommodate ANSI A17.1 shunt trip activation shall be provided by the elevator controls contractor. Any shunt trip circuit breakers and related wiring required for ANSI A17.1 compliance shall be provided by the electrical contractor.
 - 5. Dry pipe/deluge sprinkler system release valve control circuits and supervision contacts shall be provided by the dry pipe/deluge sprinkler system control equipment

1.3 REFERENCES

- A. Electrical Industries Association (EIA):
 - 1. RS-232-D – Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange
 - 2. RS-485 – Electrical Characteristics of Generators and Receivers for Use in Balanced Multipoint Systems
- B. National Fire Protection Association (NFPA):
 - 1. NFPA 12 – Standard on Carbon Dioxide Extinguishing Systems.
 - 2. NFPA 13 – Installation of Sprinkler Systems.
 - 3. NFPA 15 – Standard for Water Spray Fixed Systems for Fire Protection.
 - 4. NFPA 16 – Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems.
 - 5. NFPA 16A – Standard for the Installation of Closed Head Foam-Water Sprinkler Systems.
 - 6. NFPA 70 – National Electrical Code (NEC).
 - 7. NFPA 72 – National Fire Alarm Code 2010 Edition
 - 8. NFPA 90A – Standard for the Installation of Air Conditioning and Ventilating Systems.
 - 9. NFPA 101 – Life Safety Code 2012 Edition
 - 10. NFPA 750 – Standard on Water Mist Fire Protection Systems.
 - 11. NFPA 5000 – Building Construction and Safety Code.
 - 12. IBC Chapters 9 & 10 2012 Edition
 - 13. ADAAG Americans with Disabilities Act Application Guidelines

- C. Fire Alarm Control Panel Equipment: System shall comply with applicable provisions of the following UL standards and classifications:
 - 1. UL 864 9th Edition
 - 2. UOJZ, Control Units, System.
 - 3. SYZV Control Units, Releasing Device.
 - 4. UOXX, Control Unit Accessories, System.

- D. The Fire Alarm Control Panel's U.L. Listed signaling types shall be:
 - 1. Digital alarm communicator
 - 2. Other Technology

1.4 SUBMITTALS

- A. Equipment Submittal Brochures:
 - 1. Provide minimum 10 copies of submittal brochures and shop drawings.
 - 2. Submittal brochures shall be bound by means of 3 ring binders, binding combs or similar. Stapled brochures will be rejected.
 - 3. Provide one submittal brochure in color, highlighted and reserved for use by the Louisiana State Fire Marshal Plan Review Office. This copy shall become the record copy for the project.
 - 4. Include a cover page that indicates the following minimal information:
 - a. Project name and address.
 - b. Engineered systems distributor's name and contact information.
 - c. Installing contractor's name and contact information.
 - d. The date of the equipment submittals and date of any subsequent required re-submittals. Indicate on revised submittals the original submittal date and re-submittal date.
 - e. Architectural project review number assigned by the Louisiana State Fire Marshal's Office.
 - 5. Provide a Scope of Work Narrative describing the system's basic operating premise in written word.
 - 6. Provide a detailed Sequence of Operation Matrix Grid tailored for this project indicating the cause and effect of all fire alarm system control panels, input and output functions.
 - 7. Include a system bill of material prepared specifically for this project. Include the make, model, description, quantity and manufacturer for every component to be installed in the project.
 - 8. Provide manufacturer's data sheet for each component to be installed in the project. For data sheets that include multiple part numbers, options and accessories, the components included or pertinent to this project shall be highlighted in yellow.
 - 9. Include the U.L. (Underwriters Laboratories) Certification for each component to be installed in the system. The U.L. Certification shall be placed directly behind its corresponding data sheet.
 - 10. Manufacturers device compatibility documentation shall be included proving testing and operational compatibility between control panels and peripheral devices.
 - 11. Separate battery calculations shall be provided for each control panel and prepared on manufacturer's official worksheets.

- B. Shop Drawings
 - 1. Shop drawings shall be prepared with the contractor's own title block which shall include:
 - a. Project name and address.
 - b. Contractor's name, address and phone number.
 - c. Date.
 - d. Drawing pages shall be numbered.
 - e. Bound with spines and stapled.
 - f. Floor plan scale.

- g. Louisiana State Fire Marshal architectural assigned project number.
- h. Revision number with re-submittal dates.
- 2. Drawings shall contain one floor per page. If a floor must be split use match lines and references that refer sheet number to match lines.
- 3. Floor plan shop drawings shall be prepared in AutoCAD.
- 4. Prepare floor plans to a 1/8" = 1'-0" scale unless directed otherwise by the architect.
- 5. Show all equipment, control panels, and device locations.
- 6. Include a distinct address for every device including panels, initiating, notification, auxiliary, and peripheral devices. All visual notification appliances shall have their candela indicated.
- 7. Floor plans shall include the following:
 - a. Door swings.
 - b. Room names and numbers.
 - c. Reflected ceiling plan overlay.
 - d. Ceiling heights.
 - e. Fire and smoke barriers.
 - f. Office furnishings when available.
- 8. Include a symbol schedule of devices for this project.
- 9. Include the necessary details and general notes for mounting heights, device placement restrictions, etc.
- 10. End-of-line symbols shall be shown on the floor plans.
- 11. Riser locations shall be indicated on the floor plan by a bold circle.
- 12. A detailed riser shall be provided as part of the shop drawings. The riser shall include:
 - a. Control panels, power supplies, annunciators, demark cabinets, each identified with its own address and description matching the symbol schedule.
 - b. Operating power requirements with breaker panel and breaker number identification.
 - c. All system circuits including initiating, notification, SLC, power, control, monitor, network, audio, riser, fiber optic, phone, category cable and auxiliary circuits. Circuits shall be individually addressed indicating wire type, size, quantity and color.
 - d. Provide a point to point diagram of every system device on its riser circuit using the exact device symbol as the floor plan. Provide the corresponding device address and candela rating next to each device.
 - e. Provide the cumulative current draw at the end of each notification appliance circuit.
 - f. Indicate location and placement of surge suppressors.
 - g. Provide detail circuit diagrams for connections with systems from other trades.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, number and manufacturer.
- B. Store materials in clean, dry area indoors in accordance with manufacturer's instructions.
- C. Protect materials from damage during handling and installation.

1.6 WARRANTY

- A. Contractor shall warranty material and installation against defects in manufacturing and workmanship for a period of one year beginning on the date of final acceptance of the project. Warranty related service calls shall be provided at no charge during the contractor's normal working hours.

1.7 MAINTENANCE CONTRACT

- A. The supplier shall offer for the owner's consideration at the time of system submittal a priced inspection, test, maintenance and repair agreement for the installed system in compliance with the inspection and maintenance requirements of NFPA 72 for a period of 12 months, to commence after the expiration of the maintenance agreement included in this contract.
- B. The owner shall have the option of renewing the agreement at the price quoted, in yearly increments up to a maximum of five (5) years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. The landlord shall furnish the Fire-lite ES-200X control panel.

2.2 SUPPLEMENTARY NOTIFICATION APPLIANCE POWER SUPPLIES

- A. The following are acceptable manufacturers and series for supplementary notification appliance circuit power supplies. No substitutions are allowed. It is the intent of this specification that all notification equipment must be available over the counter through security equipment distributor network markets
 1. APS6 of APS10 with the appropriate amp.
- B. The supplementary NAC power supply shall offer up to 6.0 amps continuous regulated 24-volt power. The power supply shall include the following features:
 1. Integral Charger: Charge up to 35.0 amp-hour batteries and support 60-hour standby.
 2. 2 Input Triggers. Input trigger shall be Notification Appliance Circuit (from fire alarm control panel) or supervised addressable relay.
 3. Surface-mount back box.
 4. Ability to delay AC fail delay in accordance with applicable NFPA requirements.
 5. Power limited circuitry in accordance with applicable UL standards.
 6. Operates as sync follower or a sync generator.
 7. Shall have on-board built in sync capability for System Sensor and Wheelock brand appliances.
- C. Do not exceed 75% of the power supply's available listed current. Provide the necessary quantity of power supplies to satisfy this requirement with the quantity of devices indicated on the plans.

2.3 SYSTEM PERIPHERALS

- A. Every devices address shall be set by means of a rotary-decimal switch using a standard screwdriver. Devices using or requiring binary switches, handheld device programmers or addressed only through software mapping shall not be acceptable.
- B. Smoke detectors
 1. Shall be fully listed and compatible with the furnished system.
 2. Each detector shall be provided with 2 status LEDs that shall flash under normal conditions and remain steady during alarm conditions.
- C. Pull Stations
 1. Shall be fully listed and compatible with the furnished system, dual action, and constructed of Lexan with clearly visible operating instructions provided on cover. The word FIRE shall appear on front of stations in raised letters.
 2. Stations shall be designed so after actuation they cannot be restored except by key reset.

3. Stations shall be keyed alike with the fire alarm control panel and NAC power supply.
4. Surface boxes shall be available as an option from the manufacturer.
5. Pull stations shall not utilize glass rods.

D. Duct Detectors

1. Duct detectors shall be System Sensor DNR or DNRW Series housings.
2. Housings and all the related accessories listed below shall be provided for the each of the following:
 - a. On the ductwork of every supply branch of every HVAC air handling/rooftop unit exceeding 2,000 CFM
 - b. On the ductwork of every return branch of HVAC air handling/rooftop unit exceeding 2,000 CFM. Where duct detectors cannot be practically or effectively installed on return ductwork, securely fasten the duct detector on the side of the AHU and install and secure its sampling tube across the front of the return air filter.
 - c. On every shown smoke and fire/smoke damper. Where duct detectors cannot be practically installed on dampers consult with the general contractor to coordinate their installation with other trades.
3. The housing shall include the listed addressable photoelectric smoke detector head which shall twist in and lock inside the housing.
4. Provide System Sensor DST Series sampling tube of enough length to extend 75% of the width of the duct it is being installed in. Sampling tubes in ducts exceeding widths of 6 feet shall exceed and install across the entire width of the duct and be supported by drilling a hole in the opposite side of the ductwork.
5. A System Sensor model RTS151KEY module shall be installed for each duct detector. Provide phenolic labels identifying the related HVAC unit it is connected to. The RTS151KEY module shall mount in a standard single gang electrical box. Verify and coordinate location of RTS151KEY modules with architect.
6. Provide one addressable relay module for each HVAC required function including:
 - a. AHU Shutdown
 - b. Smoke damper operation
 - c. Smoke sequence/exhaust/pressurization operations
7. System designs incorporating hardwired, conventional relays for any mechanical functions are not allowed and will be subsequently rejected.

E. Thermal Detectors

1. Shall be listed and compatible with the furnished system.
2. Detector shall be rated at 135 degrees and shall have rate of rise element rated at 15 degrees per minute.

F. Addressable Monitor Modules

1. Where required provide addressable monitor modules to monitor normally open dry contacts from other non-addressable equipment.
2. Module shall be suitable for installation on a standard 4" square electrical box 2-1/8" deep and shall include the manufacturer's matching cover plate.
3. An LED shall be visible on the outside of the module's cover plate and shall flash under normal conditions and remain on steady when it's connected device is in alarm.
4. Modules not suitable for mounting directly onto a 4" square electrical box or those which wire with pigtail type connectors are not acceptable.

G. Supervised Addressable Output Module

1. Provide addressable supervised output module where required for the project to provide a supervised, programmed 24volt DC reverse polarity output.
2. Module shall be suitable for installation on a standard 4" square electrical box 2-1/8" deep and shall include the manufacturer's matching cover plate.
3. An LED shall be visible on the outside of the module's cover plate and shall flash under normal conditions and remain on steady when the module is activated.

- H. Addressable Relay Output Module
 1. Provide addressable modules suitable for installation on a standard 4" square electrical box 2-1/8" deep and shall include the manufacturer's matching cover plate.
 2. The module shall provide two isolated sets of Form-C normally open and normally closed contacts
 3. Contact ratings shall be rated at minimum 2.0 amps resistive or 1.0 amp inductive
 4. An LED shall be visible on the outside of the module's cover plate and shall flash under normal conditions and remain on steady when the module is activated.

- I. Audio Visual Notification Appliances
 1. Shall be System Sensor SpectrAlert Advance Series listed for use on both wall and ceiling as indicated on the plans.
 2. Provide devices white in color with red FIRE screened on device from manufacturer.
 3. Audio visual devices shall be one complete assembly utilizing a speaker for audible notification for this project.
 4. The device shall be suitable for mounting on standard electrical boxes using the manufacturer's universal mounting plate. The strobe device shall snap into the mounting plate and secured by one fastener.
 5. The manufacturer's mounting plate shall include screw terminals to accept all field wiring.
 6. Candelas shall be selectable in settings of 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177 and 185.
 7. The strobe shall be listed to U.L. 1971 standards and meet all current ADAAG Guidelines.
 8. The system shall utilize speakers for audible alarm notification. The speakers shall be listed to UL 1480 for Fire Protective Signaling Systems. It shall be a dual-voltage transformer speaker capable of operation at 25.0 or 70.7 nominal Vrms. The speaker shall have a frequency range of 400 to 4,000 Hz. The speaker shall be capable of mounting to a standard 4x4x2 1/8 electrical box. The speaker shall have power taps from 1/4 watt to 2 watts and voltage output selectable via rotary switches. The speaker shall have a maximum sound output of 86 dB at 10 feet. Provide System Sensor Spectralert SPS Series speakers and speaker strobe devices.
 9. Provide manufacturer's surface mount and weatherproof backboxes where required.

2.4 WIRE AND CABLE

- A. The following are acceptable manufacturers:
 1. Windy City Wire
 2. General Cable

- B. Cable shall be approved for plenum use without conduit per the NFPA 262 Flame Test
- C. Cable shall be approved per NEC 800, 760; UL, CMP, FPLP UL, RoHS Complaint

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas and surfaces to receive fire alarm system.
 1. Notify Architect of conditions that would adversely affect installation or subsequent use.
 2. Do not begin installation until unacceptable conditions are corrected.

3.2 INSTALLATION

- A. Install fire alarm system in accordance with NFPA 72, NFPA 70, state and local codes, manufacturer's instructions, and as indicated on the Drawings.

- B. The entire system shall be installed in a skillful manner in accordance with approved manufacturer's installation manuals, shop drawings and wiring diagrams.
- C. Coordinate locations of all devices with all other divisions' drawings and specifications.
- D. All fire alarm devices shall be accessible for periodic maintenance. Should a device location indicated on the contract drawings not meet this requirement, it shall be the responsibility of the installing contractor to bring it, in writing, to the attention of the Project Engineer.
- E. Fasten equipment to structural members of building or metal supports attached to structure, or to concrete surfaces.
- F. All systems and system components listed to UL864 Control Units for Fire Protective Signaling Systems may be installed within a common conduit raceway system, in accordance with the manufacture's recommendations. System(s) or system components not listed to the UL864 standard shall utilize a separate conduit raceway system for each of the sub-systems.
- G. No wiring except life safety system circuits and system power supply circuits shall be permitted in the control panel enclosures.
- H. Any low-voltage copper wiring that leaves the protection of a building shall be provided with a compatible UL 497B listed transient protection devices where the circuit leaves the building and where it enters the next building.
- I. Devices containing end-of-line resistors shall be appropriately labeled. Devices should be labeled such that removal of the device is not required to identify the EOL device.
- J. Fiber Optic Cable
 - 1. Only glass filament cable permitted. Plastic filament fiber optic cables are not acceptable.
 - 2. LC connectors shall be used at all equipment terminations.
- K. Conceal conduit, junction boxes, and conduit supports and hangers in finished areas. Conceal or expose conduit, junction boxes, and conduit supports and hangers in unfinished areas.
- L. Fire alarm system junction box covers shall be painted red.
- M. Wiring within cabinets, enclosures, boxes, junction boxes and fittings shall be installed in a neat and workmanlike manner, installed parallel with or at right angles to the sides and back of any box, enclosure or cabinet, and routed to allow access for maintenance. All conductors that are terminated, spliced, or otherwise interrupted in any enclosure, cabinet, mounting or junction box shall be connected to terminal blocks. Mark each terminal in accordance with the wiring diagrams of the system. Make all connections with approved pressure type terminal blocks, which are securely mounted. All terminal block screws shall have pressure wire connectors of the self-lifting or box lug type. No more than two conductors shall be installed under one connection. Wire nuts, crimp splices and similar devices shall not be used.
- N. Conductors
 - 1. Each conductor shall be identified as shown on the drawings at terminal points. Permanent wire markers shall be located within 2 inches of the wire termination. Marker text shall be visible with protective doors or covers removed.
 - 2. Maintain a consistent color code for fire alarm system conductor functions throughout

the installation.

3. All wiring shall be checked and tested to insure that there are no grounds, opens or shorts.

O. Devices

1. Fire Alarm Control Panels
 - a. Mount the enclosure with the top of the cabinet 72" above the finished floor or center the cabinet at 63", whichever is lower.
 - b. Label the fire alarm panels with the room number, electrical panel number and circuit breaker number feeding them.
 - c. Paint the handles of the dedicated circuit breakers feeding fire alarm panels red, and install handle locks.
 - d. Within the panel, all non-power limited wiring must be properly separated from power limited circuits.
 - e. Grounds shall comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.
2. Annunciator
 - a. Mount the panel; with the top of the panel 72" above the finished floor or center the panel at 63", whichever is lower.
3. Remote power supplies and auxiliary fire alarm panels
 - a. Locate the panel or cabinet with the top of the panel 72" above the finished floor or center the panel at 63", whichever is lower.
 - b. Do not locate these panels above ceilings or where inaccessible by a person standing on the finished floor of the space.
 - c. Label the power supplies and auxiliary FACP's with the room number, electrical panel number and circuit breaker number feeding them.
 - d. Paint the handles of the dedicated circuit breakers feeding fire alarm panels red, and install handle locks.
 - e. Within the panel, all non-power limited wiring must be properly separated from power limited circuits.
4. Manual Pull Stations
 - a. Mount stations so that their operating handles are between 42" and 48" above the finished floor.
5. Notification Appliances: Mount assemblies as follows:
 - a. All wall mounted audio/visual devices shall be mounted so the entire lens is between 80" and 96" above the finished floor. Where low ceilings exist, devices shall be mounted within 6" of the ceiling.
 - b. Where ceiling height exceeds 30 feet, appliances shall be suspended from the ceiling to a height of 30 feet maximum above the finished floor.
 - c. Appliances installed outdoors shall be UL listed for outdoor use.
6. Smoke Detectors:
 - a. Detectors located on the wall shall have the top of the detector at least 4" and not more than 12" below the ceiling.
 - b. On smooth ceilings, detectors shall not be installed over 30 ft. apart in any direction.
 - c. Install smoke detectors no closer than 3 ft. from air handling supply air diffusers or return air openings.
 - d. Locate detectors no closer than 12" from any part of a lighting fixture.
7. Duct Smoke Detectors:
 - a. Install sampling tubes so they extend the full width of ducts exceeding 36".
 - b. Detectors shall be located to facilitate ease of maintenance.
 - c. All penetrations near detectors located on/in return ducts shall be sealed to prevent air entry.
8. End-of-Line Resistors
 - a. Devices containing end-of-line resistors shall be appropriately labeled.
9. Remote Status and Alarm Indicators:
 - a. Install near each smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position.

10. Single-Station Smoke Alarms:
 - a. Where more than one smoke alarm is installed within a dwelling or suite, they shall be connected so that the operation of any smoke alarm causes the alarm in all smoke alarms to sound
 11. CO Detectors
 - a. Ceiling mounted CO detectors should be kept 12" from sidewalls.
 - b. Wall mounted CO detectors should be at least 48" above the finished floor, but less than 6" from the ceiling.
 - c. Locate at least 60" from fuel burning appliances.
 - d. Install CO detectors no closer than 3 ft. from air handling supply air diffusers or return air openings.>
 12. Beam Smoke Detectors
 - a. Install beam type smoke detectors in accordance with the shop drawings and the manufacturer's recommendations.
 - b. Mount detectors 19" to 24" below the ceiling unless instructed otherwise.
 - c. Keep the centerline of the beam 19" from obstructions.
 - d. Mount on solid surfaces (brick/block walls, steel beams, or concrete).
 - e. Use all mounting points on detector mounts.
 - f. Mount where accessible for maintenance
 13. Heat Detectors
 - a. Heat detectors shall be installed in strict accordance with their UL listing and the requirements of NFPA 72.
 - b. Heat detectors installed in the elevator machinery room to meet ANSI A17.1 requirements for elevator power disconnect, shall be located adjacent to each sprinkler head. Coordinate temperature rating and location with sprinkler rating and location.
 14. Addressable Control (relay) Modules
 - a. Install the module less than 3 feet from the device controlled.
 - b. Orient the device mounting for best maintenance access.
 - c. Label all addressable control modules as to their function.
 - d. Provide a dedicated 24VDC circuit to feed all auxiliary relays required for inductive loads (auxiliary relays, door holders). Circuits shall be supervised via an end-of-line relay and addressable input module. Auxiliary relays shall not derive their power from the starter or load being controlled.
- P. Do not install smoke detectors before system programming and test period. If construction is ongoing during this period, take measures to protect smoke detectors from contamination and physical damage.
- Q. Flush-mount fire detection and alarm system devices, control panels, and remote annunciators in finished areas. Flush-mount or surface-mount fire detection and alarm system devices, control panels, and remote annunciators in unfinished areas.

3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Provide service of competent, factory-trained technician authorized by manufacturer to technically supervise and participate during pre-testing and acceptance testing of system.
- B. Testing:
 1. Conduct complete visual inspection of control panel connections and test wiring for short circuits, ground faults, continuity, and insulation before energizing cables and wires.
 2. Close each sprinkler system control valve and verify proper supervisory alarm at Control Panel.
 3. Verify activation of flow switches.
 4. Open initiating device circuits and verify that trouble signal actuates.
 5. Open signaling line circuits and verify that trouble signal actuates.

6. Open and short notification appliance circuits and verify that trouble signal actuates.
7. Ground initiating device circuits and verify response of trouble signals.
8. Ground signaling line circuits and verify response of trouble signals.
9. Ground notification appliance circuits and verify response of trouble signals.
10. Check installation, supervision, and operation of intelligent smoke detectors.
11. Introduce on system each of the alarm conditions that system is required to detect. Verify proper receipt and proper processing of signal at Control Panel and correct activation of control points.
12. Consult manufacturer's manual to determine proper testing procedures when system is equipped with optional features. This is intended to address such items as verifying controls performed by individually addressed or grouped devices, sensitivity monitoring, verification functionality, and similar.

C. Acceptance Testing:

1. Before installation shall be considered completed and acceptable by AHJ, a complete test using as a minimum, the following scenarios shall be performed and witnessed by representative approved by Engineer. Monitoring company and/or fire department shall be notified before final test in accordance with local requirements.
2. Contractor's job foreman, in presence of representative of manufacturer, representative of Owner, and fire department shall operate every installed device to verify proper operation and correct annunciation at control panel.
3. Open signaling line circuits and notification appliance circuits in at least 2 locations to verify presence of supervision.
4. When testing has been completed to satisfaction of both Contractor's job foreman and representatives of manufacturer and Owner, a notarized letter co-signed by each attesting to satisfactory completion of said testing shall be forwarded to Owner and fire department.
5. Leave fire alarm system in proper working order and, without additional expense to Owner, replace defective materials and equipment provided within 1 year (365 days) from date of final acceptance by the owner.

3.4 DEMONSTRATION

- A. Provide instruction as required for operating fire alarm system.

END OF SECTION